THE MICRO USER

Volume 9 Number 8 October 1991 £1.95

europress PUBLICATIONS

LET'S COMPUTE!

8 Extra pages for all 8-bit beginners

PLUS

8 Extra pages for new Arc owners

PLUS

FREEBIES

1,500 FREE DISCS OFFER

PLUS

Every one of your regular monthly features in this bigger, brighter MICRO USER

If there are no vouchers in this space please see your newsagent

SAVE A BOMB!
With £400 worth of money-off vouchers

For ALL users of the BBC Micro, Master, Archimedes series, A3000, Electron

THE MICRO USER

October

Vol. 9 No. 8

MORLEY E·L·E·C·T·

SPECIAL OFFER

0% finance available.
We will try to match or better any advertised offer.

Archimedes

THE WORLDS MOST POWERFUL MICRO

A3000	£599
410/1	£1099
420/1	£1299
440/1	£1699
The Learning Curve	£699
Arc. Learning Curve	£1299
A3000 Special Access	£679

MEMORY EXPANSION

THE BEST VALUE MEMORY UPGRADES

Unlike most other cards, our expandable card can be upgraded from 1MB to 3MB at a later date for maximum flexibility.

A3000 1MB Expandable	£69
A3000 1MB Non-Exp.	£59
A3000 3MB Upgrade	£179
A3000 1MB to 3MB	£140
305 1/2 MB	£69
400 Series 1MB	£50

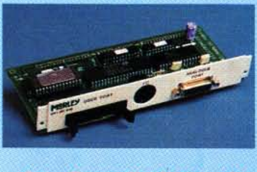
ARCHIMEDES PERIPHERALS

Acorn Colour Monitor	£199
Microvitec CUB3000	£189
Mono Monitor	£73
A3000 Monitor Stand	£20
A3000 User & Midi Port	£49
Serial Upgrade	£19
Econet Upgrade	£49
Acorn ROM Podule	£56
300 2 Slot Backplane	£37
300 4 Slot Backplane	£59
300/400 I/O Podule	£85
300/400 Midi Podule	£69
300/400 3.5" Drive	£115

LEADS & MISC. HARDWARE

Arch SCART Monitor Lead	£8
Arch 9 Way Msync Lead	£8
Arch Serial Lead	£8
Arch Printer Lead	£6
BBC Printer Lead	£6
2 to 1 Printer switch	£20
3 to 1 Printer switch	£30
4 to 1 Printer switch	£36
64k Printer Buffer	£115
256k Printer Buffer	£199
EPROM Eraser	£18
Eraser with Timer	£23
5.25" Floppy Discs x10	£5
3.5" Floppy Discs x10	£10
27128 Blank EPROMs	£3

A3000 BBC ANALOGUE & USER PORT PODULE



Full specification BBC analogue and user port. The analogue port is accessible using ADVAL from BASIC5 with all BBC OSbyte calls supported.

£59

As Supplied to Acorn for their A3000 Special Access Package

CROSS-32 META-ASSEMBLER

Table driven macro cross-assembler supporting over 30 processors with the facility to add more.

Phone for data sheet. £175

ArcTools

Fully RISC OS compliant disc utility package. Various features including:

- Multiple file & directory manipulation (deleting, searching, setting access rights, file types etc.)
- System information (including computing index)
- File editor (both ASCII & hex)
- Disc Editor (both ASCII & hex)

£19

ARCHIMEDES & A3000 HARD DISK DRIVES

FREE ARCTOOLS WORTH £19 WITH EVERY HARD DISC DRIVE

SCSI HARD DISK DRIVES

INTERFACES

A3000 SCSI Podule	£169
400 SCSI Podule	£149

SCSI DISK DRIVES

Including SCSI podule, drive, cable & leads. A3000 drives also include drive case and switch mode power supply.

A3000 20MB	£289
A3000 40MB	£379
A3000 100MB	£579
400 20MB	£219
400 40MB	£299
400 100MB	£499
Larger Drives	POA

Morley's SCSI and ST506 drives are among the fastest available. The podules are 16 bit and we only use fast, quality disk mechanisms. Phone for full details.

ST506 HARD DISK DRIVES

INTERFACES

A3000 ST506 Pod. Kit	£99
305/310 ST506 Podule	£149

ST506 DISK DRIVES

Including ST506 podule, drive, cable & leads. A3000 drives also include drive case and switch mode power supply.

A3000 20MB	£249
A3000 40MB	£349
A3000 55MB	£489
305/310 20MB	£299
305/310 40MB	£389
305/310 55MB	£474

BBC / MASTER SCSI DRIVES

Completely compatible with BBC Bs, B + s and Masters fitted with ADFS. Free utility disc including Format, Verify, Archive and Park.

20MB incl. interface	£399
30MB incl. interface	£449
40MB incl. interface	£499

MORLEY HOUSE, WEST CHIRTON, NORTH SHIELDS, TYNE & WEAR, NE29 7TY. TEL (091) 257 6355. FAX (091) 257 6373

R·O·N·I·C·S · L·T·D

CONTROL ON THE A3000

SPARKLE

Sparkle is a fully RISC OS compliant control package for the A3000 & Archimedes allowing full control of input, output and motor devices via most control boxes.

Sparkle is a simple language which gives users full access to control boxes as well as the ability to use analogue equipment and simulate inputs & outputs in a variety of ways. Data & frequency logging and counting & timing facilities are also provided as standard.

Sparkle	£59
Site Licence	£200

AnDi ODDULE

The AnDi Oddule is a low cost control box for the A3000 & Archimedes. There are 8 input/output connections, 4 analogue to digital inputs and 1 digital to analogue output. The box connects directly to an I²C connector (as on our Analogue & User Port interface) or can connect to a standard podule socket via an optional adaptor. The box can be controlled directly via RISC OS SWI calls or using Morley's Sparkle control software.

AnDi ODDULE	£49
Optional Adaptor	£8

ALFRED ROBOT ARM

The Alfred Robot Arm is designed to provide a low cost solution to the teaching of the principles of robotics in schools, colleges and industrial training departments.

The system is structured to provide on-going education by introducing expansion modules, therefore always updating the system to meet mew technology demands.

The complexity of exercises that can be carried out will benefit school children who are being introduced to robot technology or technical college students requiring an in-depth understanding of industrial robots. £330

TELETEXT

MORLEY
TELETEXT ADAPTER

THE MORLEY TELETEXT ADAPTER

BBC/Master	£104
Compact	£120
RML Nimbus	£104
Archimedes	£125
Optional PSU	£9.50
Upgrade from BBC to Archimedes	£35

MASTER CARTRIDGES

Dual 2 x 16k	£10
Quad 4 x 16k	£14
Dual 2 x 32k	£12

SMART CARTRIDGE

Built-in features include:
- Freeze program at any point.
- Screen dump (any mode).
- Allows most protected software to be backed up including disc to tape and tape to disc. £40

BBC / MASTER EPROM PROGRAMMER

MORLEY
EPROM PROGRAMMER V2

The fastest, best value programmer in the market.

Totally software controlled.

Programmes 27128/2764/27256 EPROMs: 12 and 21 volt.

Includes full ROM management software with numerous features £40

EPROM utility disc. Put all your favourite routines into sideways ROM, both basic and machine code. £7

BBC / MASTER DISC DRIVES

Single 40/80 switchable	£79
Dual 40/80 switchable	£169
Power Supply	£40

A3000 ADDITIONAL DRIVES

A3000 3.5" SECOND DRIVE

- Easy to install - simply plug in and run.
- High quality Japanese drive.
- Incl. full fitting kit (with one drive) and instructions £125

A3000 5.25" SECOND DRIVE

Kit includes:
- 5.25" 40/80 track drive
- Case
- Power supply
- Interface and leads £169

A3000 DISC BUFFER

Supports up to three external drives
Fully buffers all external drives
Software control of step rate and double stepping of 5.25" drives
Allows drive numbers to be changed from software £48

MASTER ROM EXPANSION BOARD

THE ULTIMATE ADD-ON FOR ALL SERIOUS MASTER USERS

No more need to switch your computer off to insert a cartridge containing a required ROM.

With 2 cartridges and a ROM board, a staggering 32 ROM images installed.

Allows an additional 8x16k and 4x32k ROMs to be installed in the Master and still leaves the cartridge slots free.

Master control ROM which includes a clever file transfer program allowing files to be transferred between DFS and ADFS formats or vice-versa. £49

As well as manufacturing quality peripherals for over six years, Morley is an Acorn Dealer & Service Centre. This advertisement only covers a small range of the products we offer. If there is anything you want that you do not see advertised please phone for a competitive quote.

ALL PRICES EXCLUDE VAT & CARRIAGE. DATA SHEETS AVAILABLE FOR MOST PRODUCTS.

THE MICRO USER

Managing Editor
Derek Meakin

Publisher
Peter Glover

Features Editor
Steve Turnbull

Art Editor
Tym Leckey

Reviews Editor
Pam Turnbull

Technical Editor
Mike Cook

Chief Sub Editor
Alan MacLachlan

Group Advertisement Manager
John Snowden

Advertising Sales
Emma Barr
Peter Babbage

Advertising Production
Simon Williams

Marketing Manager
John Weir

Circulation Director
John Burns

Circulation Manager
David Wren

Systems Manager
Dave Stewart

Tel: 0625 878888 (All depts.)
051-357 2961 (Subs.)

Telex: 94081191
Fax: 0625 879966

europress PUBLICATIONS

Europa House, Adlington Park,
Macclesfield SK10 4NP.

ABC 24,365
January-June 1990
ISSN 0285-4040

The Micro User welcomes new program listings and articles for publication. All material should be supplied on disc or tape and printed. Please enclose a stamped, self-addressed envelope, otherwise the return of material cannot be guaranteed. Contributions accepted for publication will be on an all-rights basis.

The Micro User is an independent publication and neither the BBC nor Acorn Computers Ltd are responsible for any of the articles in this issue or for any of the opinions expressed.

© 1991 Europress Publications Ltd. No material may be reproduced in whole or in part without written permission. While every care is taken, the publishers cannot be held legally responsible for any errors in articles, listings or advertisements.

News Trade Distribution: UMD 071 700 4600

All the original flavour of The Micro User – with two completely new sections, extra pages and nothing taken away. You've never had it so good!

FREEBIES

Would you like to receive software packages for the 8 bit BBC Micro for free? Find out how on Page 15.

SPECIALS

57 **Mozaic Madness** *
A simple but brain-teasing puzzle for all Acorn machines.

77 **100th Issue Results**
Who won what in our massive 100th issue competition.

102 **Tai-Pei** *
Play this superb version of the classic patience game.

Type-it-in

This symbol indicates that the feature contains at least one full length listing for you to key in on your micro. *

All the major listings in this magazine are accompanied by checksums to help you key them in correctly. *Get it right* ✓
For full details of how to use them see the article on page 56 of the February 1991 issue.

CLASSIFIEDS

The best bargains in the world of all Acorn micros come from readers of The Micro User. Turn to Page 128 to find just what you're looking for – from cheap modems to complete computer systems.

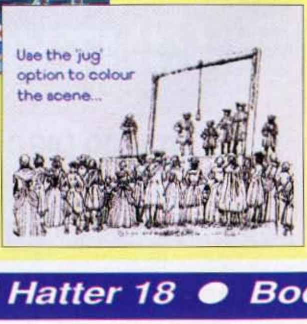
EDUCATION

23 **Update**
Up-to-the-minute news of the Acorn range of micros in use in the world of education.

26 **Reviews**
Catch up on the latest software for the BBC Micro series in schools, including:
- !Map-It
- PIPP Archimedes
- Imagine
- Hedgerows

IDENTIFICATION

imagine...
an art and maths
pack from TOPOLOGIK



121 **Let-Us**
Easy learning on your micro for young button-pressers.

REGULARS: News 9 ● Mad Hatter 18 ● Body

Essential Archimedes

Make your learning curve even easier with the start of four how-to-do-it series for all Archimedes users:

80 **DTP** Learn the fundamentals of page layout and design.

82 **Databases** Discover how to handle information technology.

84 **Spreadsheets** Explore cells and functions to manipulate numbers.

86 **Object drawing** How to create pictures that can be easily altered.

To accompany the new series on DTP and spreadsheets take advantage of our free Archimedes disc offer containing special versions of Impression Junior and Schema. See Page 33.

LET'S COMPUTE!

Start of a brand new fun section that teaches the basics of computer programming:

65 **Rom & Ram** Learn about programming in BBC Basic. *

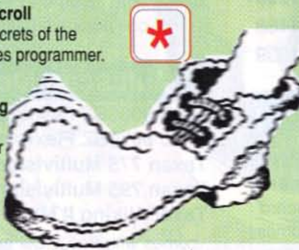
69 **Logo Lowdown** Discover how to make the turtles do what you want. *

74 **Safe Scientist** The Mad Professor introduces you to food energy. *

SPECIALS

111 **Hardware Scroll** Learn the secrets of the arcade games programmer. *

117 **Hard Driving** How to arrange your hard disc for easier use. *



123 **Keyword Keys** Cut-down on your typing with this superb utility. *

THE MICRO USER

Three Unbeatable subscription offers

You have the choice of extra issues for free, an amazing flight simulator or brilliant quiz game.

And that's not all, for month after month with your subscription you'll receive a disc or tape with software and listings from the latest issue.

In addition, those readers with a BBC A3000 or Archimedes series machine will also get extra programs. This month they will receive:

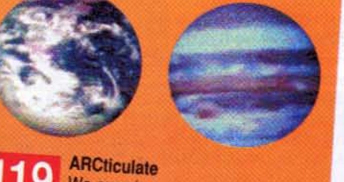
- Brain Surgeon game
- Virus Killer, version 2.30
- Plus tons of PD software

Find out how to subscribe on Page 126

Newcomers

41 **UltraSonic** A new music package to accompany Arcade Game Creator.

106 **!Orrery** Take up star-gazing without the need to get cold or lose sleep.



119 **ARCticulate** We examine a fourth package that makes your micro speak.

Software SCENE

52

Our experts sift through the latest games releases.

NEXT MONTH IN THE MICRO USER

There are lots of handy utilities for all Acorn machines plus our PD section full of great money-saving ideas.

Building 35 • Problem Solved 37 • PD Page 39 • Letters 129

Dabhand Computing Ltd.

TERMS: UK residents add 17.5% VAT to all prices, except books. Delivery FREE on all postal items in the UK. Foreign orders, no VAT, carriage at cost. (quotations available). Access/Visa cards accepted. Dabhand Computing Ltd. is a Qualified Acorn dealer. Official orders accepted from public sector/education/ PLCs, otherwise cash with order. Tender invitations welcome. Callers welcome. We are 800 yds north of J17, M62. Fax: 061-766 8425. Prices subject to change without notification. Goods offered subject to being unsold.

Dabhand Computing Ltd, 5 Victoria Lane, Whitefield, Manchester M25 6AL. This advert was produced using Impression from Computer Concepts.

Archimedes Computers

A 3000 2Mb Ram	**£599.00**
A 3000 LC 2Mb Ram *	**£699.00**
A 410/1	**£1099.00**
A 420/1 LC **	**£1299.00**
A 440/1	**£1699.00**
A 540	**£2995.00**

We can match or improve on prices advertised or quoted in or from this magazine please phone for the best deals.

We operate the Acorn Schools, Academics & Finance schemes.

* Pack includes PC Emulator, 1st Word Plus, Genesis. ** + Acorn DTP.

Oak SCSI Devices

Worra Winnie	
20 Mb Internal Hard Disc	£299
45 Mb Internal Hard Disc	£399
80 Mb Internal Hard Disc	£599
100 Mb Internal Hard Disc	£795
200 Mb Internal Hard Disc	£1195
20 Mb External Hard Disc	£349
45 Mb External Hard Disc	£449
80 Mb External Hard Disc	£649
100 Mb External Hard Disc	£845
200 Mb External Hard Disc	£1245
High Speed Range	
40 Mb Internal Hard Disc	£495
80 Mb Internal Hard Disc	£675
100 Mb Internal Hard Disc	£995
200 Mb Internal Hard Disc	£1545
45 Mb External Hard Disc	£685
80 Mb External Hard Disc	£865
100 Mb External Hard Disc	£1185
200 Mb External Hard Disc	£1735
60 Mb Tape Streamer	£795

Archimedes A400

5.25" Ext. floppy disc interface	£30
A 540 4Mb Ram Upgrade	£449
Additional 3.5" Floppy Disc	£119
ARM 3 Upgrade (Aleph 1)	£369
ArVis S-VHS Video Cont. Board	£295
ArVis S-VHS Encoder Board	£145
ArVis Video Graphics Board	£877
Atomwide 8 Mb Memory Upgrade	£850
Chroma 345 Overlay Board	£389
Dongle Dangle (Impression/Oak)	£6
Econet Module	£46
Ethernet Expansion Card	£249
Floating Point Expansion Card	£449
Hawk V9 Video Digitiser	£339
I/O Expansion Card	£79
Keyboard Extender	£8
Midi Upgrade to I/O Exp. Card	£27
Midi Expansion Card	£65
Mouse (New Style)	£40
Scanlight Junior Scanner A6 (CC)	£179
Scanlight Junior 256 Grey Level (CC)	£199
Scanlight Senior Scanner A4 (CC)	£349
Sheet Feeder for above A4 (CC)	£105
SCSI Expansion Card (Acorn)	£229
TCP/IP Ethernet	£199
VIDC Enhancer	£29

Dabhand 410/1 to 420/1

Acorn A410/1 upgraded to A420/1 specification using only the highest quality Samsung Ram and a 20 Mb Seagate ST-125-1 28ms drive or Acorn drive formatted and tested for guaranteed trouble free use.

A410/2 20 Mb	**£1099**
Colour System	**£1289**
Eizo 9060 SZ System	**£1499**

Dabhand 410/1 to 440/1

Acorn A410/1 upgraded to A440/1 specification using a Branded 40 Mb 28ms drive formatted and tested as above.

A440/1 specification	**£1299**
Colour System	**£1488**
Eizo 9060 SZ System	**£1699**

Dabhand ST506 Hard Disc Drives

Archimedes A410 Internal Hard Disc Drives for use with 'on-board' ST506 winchester controller. Comes complete with mounting chassis, screws, connecting cables and easy to follow fitting instructions.

20 Mb 28ms	**£99**
40 Mb 28ms	**£245**

Oak Recorder

SUPERB NEW IDEA FOR SAMPLING SOUND (requires no podule) **£29.95**

Complete with Microphone & Software.

A3000 Ram Upgrade

Atomwide Ram Upgrades

1 Mb Ram Upgrade	**£56**
4Mb upgrade to above board	£130
4 Mb Ram Upgrade	**£159**

A3000 Upgrades

5.25" External floppy disc cable	£15
5.25" External f/disc buffer (Pres)	£46
5.25" External f/disc buffer (Beebug)	£39
Dust cover (Keyboard + Monitor)	£12
User & Analogue Podule	£46
Monitor Stand (Acorn)	£29
Monitor Stand (Pres)	£24
Mouse Extender (No more fiddling)	£8
Serial Upgrade	£19
Serial Link Kit (BBC-Arc)	£14
User & Midi Podule	£46
VIDC Enhancer	£29

A400 Series Ram Upgrades

Fast Samsung Ram complete with step by step fitting instructions, or fitted FREE on our premises by our Engineer.

1 Mb Ram	**£35**
2 Mb Ram	**£65**
3 Mb Ram	**£99**

Standard Monitors

Acorn Colour	**£199**
Microvitec Cub 3000	**£199**
Philips CM8833 II	**£199**
Philips Mono (Green)	**£85**

All monitors come with free lead. State type of computer when ordering.

Multiscan Monitors

EIZO 9060SZ Flexiscan	**£399**
EIZO 9070SZ Flexiscan ^	**£599**
Taxan 775 Multivision	**£389**
Taxan 795 Multivision ^	**£465**
Taxan Viking II Mode 23	**£749**

^ comes with free VIDC enhancer.

Master 128

Master 128	**£369**

Floppy Disc Drives

5.25" Single 40/80 no psu	£95
5.25" Single 40/80 with psu	£109
5.25" Dual 40/80 no psu	£185
5.25" Dual 40/80 with psu	£199
3.5" Single with psu	£85
3.5" + 5.25" 40/80 no psu	£185
3.5" + 5.25" 40/80 with psu	£209

Printers

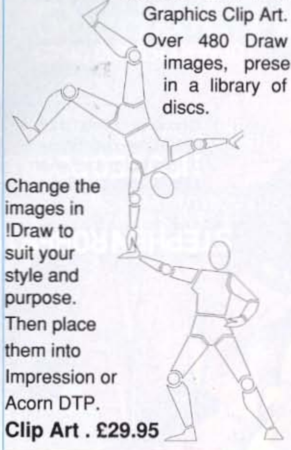
Citizen 120D+ (Serial add £20)	£129
Citizen Swift 9	£179
Star LC10	£139
STAR LC200 COLOUR (9 pin)	£199
CANON Bubblejet BJ-10e	£289
Canon Bubblejet BJ-130e	£449
Sheetfeeder for BJ-10e	£59
Citizen Swift 24	£249
Colour Kit for above (also Swift 9)	£39
STAR LC24 - 200	£239
STAR LC24 - 200 COLOUR	£289
Sheetfeeder for LC24 - 200	£69
Integrex Colourjet 132	£519
HP Paintjet	£795
LASER DIRECT (Qume)	£859
LASER DIRECT (LPB8 Hi Res.)	£1299

Midnight Graphics Products

Clip Art - Draw Files

Give your DTP documents the right balance with Midnight Graphics Clip Art.

Over 480 Draw file images, presented in a library of five discs.



Change the images in !Draw to suit your style and purpose.

Then place them into Impression or Acorn DTP.

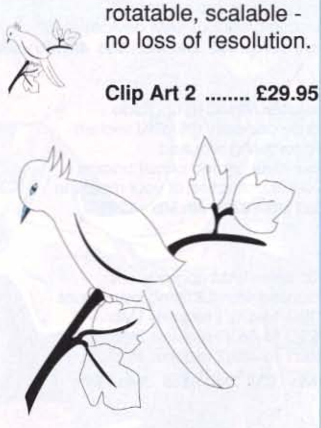
Clip Art . £29.95

Clip Art - Set 2

Clip Art Set 2 - Now Available

Draw file Clip Art - Completely rotatable, scalable - no loss of resolution.

Clip Art 2 .... £29.95



Full Range of Educational & Special Needs Software Available

4Mation, Chalksoft, Longman, Sherston, Widgit
And many more ...

Books (No Vat)

C: A Dabhand Guide	£14.95
Archimedes Assembly Language	£14.95
Archimedes Operating System	£14.95
The above books have accompanying discs add £5 for 5.25", £7 for 3.5"	
A3000 Technical Guide	£29.95
A540 Technical Guide	£65.00
Acorn DTP Advanced U.G.	£14.95
Archimedes First Steps	£9.95

BASIC V: A Dabhand Guide	£9.95
BBC Basic Guide (Acorn)	£19.95
DTP Seeds (4Mation)	£8.45
128 Ref. Man.Pts 1&2	(ea.) £14.95
New Advanced User Guide	£19.95
RISCOS PRM's	£79.00
Additional Arc Software Manuals (Acornsoft)	
First Word Plus, DTP, Assembler .	(ea.) £10
ANSI C Version 3	£19

Printer Drivers

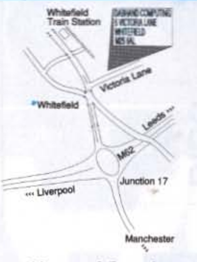
Midnight Graphics	
Citizen Swift 9 Sprite Dump	£26.04
Citizen Swift 24 Sprite Dump	£26.04
Epson 24 Sprite Dump	£26.04
HP Paintjet Sprite Dump	£26.04
Integrex 132 Sprite Dump	£26.04
Integrex Colourcel Sprite Dump	£26.04
Juki 5520 Sprite Dump	£26.04
Star LC10 Sprite Dump	£26.04
Star XB24 Sprite Dump	£26.04
Star LC200 Sprite Dump	£26.04
Star LC24-200 Sprite Dump	£26.04
Ace Computing	
Printer JX	£13.00
Printer PJ	£13.00
Printer CA	£13.00
Electronic Font Foundry	
BubbleJet - BJ10e/130e	£10.00

- *Acorn Qualified Dealer*
- *Acorn Component Level Service Centre*
- *Specialists in Education*
- *Friendly Professional Service*

Software

ANSI C V.3 Compiler + free C Guide	£130.00
Apocolypse (3D Space Game)	£14.00
Arc DFS (DFS Filing System)	£22.00
ArcTerm (Serial Port)	£59.00
ARCTICULATE (4th Dimension SPEECH)	£14.00
ARCTIST (256 Colour Paint Package 4th Dim.)	£14.00
Artisan 2 (16 Colours)	£45.00
Atelier (Minerva 256 Colours)	£75.00
BOOGIE BUGGY	£17.00
CHESS 3D	£14.00
CHOCKS AWAY 2 (Flight Simulator)	£15.00
CHOCKS AWAY EXTRA MISSIONS	£14.00
CHOCKS AWAY 2 + EXTRA MISSIONS	£27.00
DESKTOP C V.4 Compiler (Acorn)	£199.00
Desktop Office (Minerva Integrated Package)	£95.00
DROP SHIP (Superb Graphics)	£13.00
EASIWRITER (Word Processor)	£135.00
Euclid 2 (3D Drawing)	£50.00
E-Type (Driving Simulation) / Designer each	£13.00
Equazor (Equasion generating package)	£39.00
First Word Plus V2 (Acorn)	£65.00
FONT FX (Font Effects for Draw/Impression)	£8.65
Flexifile Relational Database (Minerva)	£110.00
GRAPHBOX with Hotlink to PDream 3	£60.00
Holed Out, Extra Courses, Designer each	£13.00
HOSTAGES (Superior)	£14.00
IMPRESSION 2 (Document Processor)	£125.00
IMPRESSION JUNIOR (Easy DTP)	£70.00
IMPRESSION BUSINESS SUPPLIMENT	£45.00
Inertia (4th Dimension)	£13.00
INTERDICTOR 2 (Flight Simulator)	£25.00
Investigator (The Best Disc Copier)	£22.00
IRON LORD	£14.00
MINI HYPERPACKS (3 games p p) No's 1 to 4	£15.00
Maddingly Hall (Minerva Adv.)	£13.00
MAD PROFESSOR MARIARTY (Platform game)	£14.00
Magnetic Scrolls (Adventures)	£22.00
Manchester United	£19.00
Microstudio (Emr - Learn Music)	£79.00
MIG 29 (Flight Simulator)	£28.00
MULTIFS (Arxe Systems - Atari, PC, DFS)	£27.00
Multistore Database (Minerva)	£195.00
NEVRYON (Unbelievable Graphics & Gameplay)	£14.00
PC Emulator V1.60 + free Shareware	£99.00
Pipedream 3 (WP)	£115.00
Pipe Mania (Addiction beyond belief)	£16.00
POSTER (Superb effects)	£75.00
POWERBAND (3D Formula 1 Racing - 4th Dim.)	£16.00
ProArtisan (256 Colours)	£70.00
REAL MCCOY 1 or 2 (4 Game Compendium)	£20.00
RENDER BENDER 2 (Clares)	£99.00
RHAPSODY 2 (Clares Music package)	£45.00
SALOON CARS (Driving Simulation)	£18.00
SCHEMA (Multitasking Spread Sheet)	£90.00
Superior Golf	£12.00
SUPERIOR SPEECH	£14.00
STUDIO 24 PLUS (EMR New Risc Os Version)	£149.00
The Wimp Game (Desktop Adventure 4th Dim.)	£14.00
Tracker (Make Great Music)	£37.00
Twin World	£14.00
WONDERLAND (The Ultimate Adventure)	£24.00
WorraCad (Oak 2D Draughting Package)	£75.00
Worra Plot (Draw/HPGL Plotter Driver)	£25.00

How to find us



Hours of Opening
Monday - Friday 9.00 a.m. - 5.00 p.m.
Saturday 10.00 a.m. - 5.00 p.m.

NO Minimum Order Value
NO Carriage Charges in Mainland UK

ALL Goods Despatched within 24 Hours Subject To Stock Levels

TEL: 061 766 8423

The Cor e Upgrade Solution

ARM3 for A3000's
£399 + VAT inc installation

Qualified
Dealer

A3000

- Uses only eight RAM devices
- User upgradeable from 1 to 4 Mb
- Four layer printed circuit board
- Low power consumption
- Available without RAM devices

Bare card - £35 2nd Mb - £56 4th Mb - £159

A3

- Includes MEMC1a upgrade
- Large capacity OS ROM sockets
- No soldering required
- Four layer printed circuit boards
- Courier collection of your machine

2nd Mb - £225 4th Mb - £299

Come and See us at
the Acorn User Show
at Wembley between
11th & 13th October

A400

- 400 series RAM upgrade kits
- Supplied with full fitting instructions
- 410/1 to 420/1 requires 1Mb
- 420/1 to 440/1 requires 2Mb
- 410/1 to 440/1 requires 3Mb

1Mb - £35 2Mb - £65 3Mb - £99

8Mb

- Uses only eight RAM devices
- Suitable for A440, A400/1 & R140
- Fully RISC OS compatible
- Four layer printed circuit boards
- Courier collection of your machine

8 Mb upgrade - £649

ARM3

- New series Aleph One ARM3
- 3 to 4 times performance increase
- Surface mount technology
- Four layer printed circuit board
- Courier collection of your machine
- Suitable for all Acorn ARM2 based machines

ARM 3 upgrade - £380 ARM 3 for A3000's - £399

VIDC

- Increases resolution with all Multiscan monitors
- Doubles desktop work area
- Custom modes for Taxan and Eizo monitors
- Suitable for all Archimedes computers
- Free with any multiscan monitor from Atomwide

Atomwide VIDC Enhancer - £29

DISC

- Syquest removable disk systems
- Including One cartridge, drive unit and all cables
- 42Mb removable cartridges
- High-flow fan fitted for improved cooling
- Please phone for prices on other SCSI related products

Atomwide Syquest drive unit - £445 42Mb disks - £64

- All products are cross-compatible
- Combination deals available on all products
- Typical combination A310 4 Mb and ARM3 £599
- Dealer enquires welcome
- Phone for full details on all products

All prices exclude VAT at 17.5% but include delivery

Access

VISA

ATOMWIDE

23 The Greenway Orpington Kent BR5 2AY Tel 0689 838852 Fax 0689 896088

NEWS BEAT

Acorn sponsor athletics stars

TOP javelin thrower Fatima Whitbread and other stars of the athletics world will soon be making personal appearances for Acorn Computers following a sponsorship deal reputed to be worth a six figure sum over the next two years.

Acorn have signed the deal with Fatima's Chafford Hundred Athletic Club at Thurrock in Essex. Formed nine months ago, its other members also include Linford Christie, Colin Jackson, Steve Backley and John Regis.

As their part of the agreement, athletes from the club will make personal appearances at Acorn events and in publicity material related to Acorn promotions.

"The technical expertise of Acorn, coupled with details of our training activities creates a combined programme that is both interesting and educationally stimulating for the country's up and coming young athletes", said Fatima who is president of the club.

"We are keen to encourage young athletes to develop, especially those who come from disadvantaged backgrounds.

"Acorn not only has an excellent track record in UK schools but also its close involvement with those in society who have special needs ties in with our philosophy of helping those less fortunate than ourselves".

Acorn's marketing director, Mike O'Riordan, said: "We have a common objective in being able to help children achieve their full potential in education and sport.

"We are therefore delighted to form this partnership with the Chafford Hundred athletes and look forward to working closely with them over the coming months".

Developer software takes Risc road

TWO major upgrades to Acorn's C and Assembler programming development software now integrate them into the Risc OS desktop and its fully integrated multi-tasking Wimp environment.

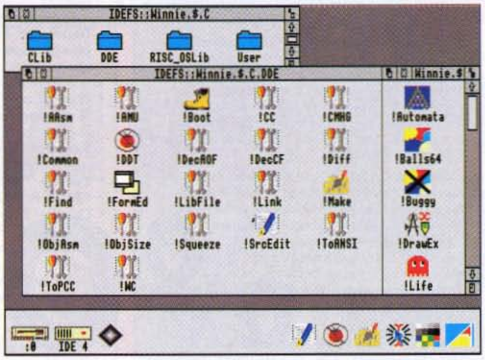
Called Acorn Desktop C and Acorn Desktop Assembler, they include all the tools needed for software development offering debugging, editing program source, generating object code, managing and construction of applications from multiple source files and using support utilities.

In addition, the two packages can be used simultaneously so that both C and Assembler can be combined in one application.

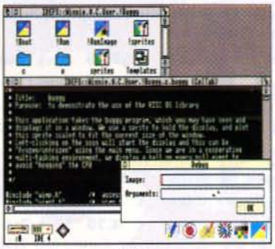
"The great step forward for these major new releases is that all the tools are now integrated into the multi-tasking Risc OS desktop", said Acorn's product manager Henry Howarth.

"This means that you can now carry out all aspects of software development simultaneously in a consistent and powerful environment".

Acorn Desktop Assembler costs £149, with a special upgrade offer of £75 for existing users. Acorn Desktop C costs £229 with upgrades for existing users of £85 for release 3 and £105 for releases 1 and 2.



Loads of useful tools



Special version of !Edit

YOUR MICRO USER

This issue of The Micro User introduces two innovative new sections designed to further increase the magazine's coverage of the Acorn computing scene. Both reflect the continuing influence of the BBC and Archimedes micros on the general computing scene and particularly the field of education.

- **On Page 80 is the start of a tutorial series on the Archimedes and BBC A3000, The Essential Archimedes, which will give newcomers to these machines a great introduction to basic software ideas.**

Coupled with The Essental Archimedes is our special offer of a free 3.5in disc, which contains demonstrations of some superb commercial programs that you can use with the series (see Page 33).

- **On Page 65 we start another tutorial, based on the Let's Compute! magazine approach, giving younger readers a firm grounding on the BBC Micro.**

Both eight page sections are in addition to – and not deducted from – the usual wide-ranging features to which all our readers look forward.

Another innovation this month are the cover-mounted vouchers, which can save you hundreds of pounds.

After all this good news, comes the down side. Regrettably, rising costs, plus the greatly increased size of the magazine, have forced a small price rise, the first in over three years.

Wimp Programmer's Toolkit

£19.95 inc VAT

Twelve powerful multi-tasking utilities - an essential aid to any programmer

- **Spyglass** - displays the contents of memory allocated to any task currently running.
- **Wimp Debugger** allows you to debug Wimp-based programs while testing and running them.
- **Template Editor** - the latest version of Acorn's FormEd for designing windows and icons.
- **Template File Browser** allows you to view the contents of a template file.
- **Application Shell Generator** utility for creating application directories, Obey files and their sprites.
- **Menu Editor** - create and edit Wimp menu structures for use in your own programs.
- **WimpAid** allows pointer, window and icon parameters to be dynamically displayed on screen.
- **Iconbar Shell Generator** allows you to build simple multi-tasking programs very easily, by creating a shell.
- **Desktop File Loader** allows you to load a program from the Desktop, rather than run it.
- **Icon Flag Generator** calculates the value of icon flags without recourse to binary arithmetic.
- **EasyWimp** provides a ready-made Wimp application shell to be used for creation of single-window applications.
- **Wimp Message Monitor** provides a means of monitoring the Wimp polling system.

A multi-tasking customisable magazine database

ArcScan III

£18.95 inc VAT

Contains the following Databases:

- RISC User Volumes 1, 2 and 3
- BEEBUG Volumes 1 - 9
- Index to RISC OS Programmer's Reference Manual
- Index to ANSI C Manual (Release 3)
- Index to BBC Basic Guide
- Index to RISC OS User Guide

ArcScan III features:

- flexible keyboard search on any entry
- dynamic memory management, returning unused memory to the Wimp
- dedicated ARM code routines enabling rapid information retrieval
- improved search logic - choice of 3 logical operators: OR, AND and NOT
- fast scrolling Wimp window displaying finds
- detailed manual and extensive on-screen help
- new extended wildcard option
- fully user customisable

£9.95 inc VAT

ArcScan Library Disc

Offers an index for Acorn User and Micro User magazines from January 1987 to date.

The Library Disc will be regularly updated to include the latest issues, and upgrades will be available for £4.45 . As a **Special Offer** you can purchase an ArcScan Library disc with vouchers for two upgrades for the price of £16.95 (inc VAT).

A selection of 12 multi-tasking

Desktop Applications

£14.90 inc VAT

- **DataSheet** - data presentation package for creating annotated graphs
- **Calc_570** - an implementation of a scientific calculator.
- **CharDes** - character designer for creating new system fonts.
- **Diary** - a Desktop diary and calendar.
- **B_to_T** allows Basic programs to be edited without leaving the Desktop.
- **FileFind** performs a hierarchical search for a given file, application or directory.
- **SetType** - change the filetype of any file by dragging it to the icon bar.
- **HotKeys** - allows single key presses to perform a wide range of functions.

- **Mouse** - change the mouse speed merely by clicking on an icon.
- **Print** allows files to be printed just by dragging them to the icon bar.
- **NotePad** provides for up to eight pages of jottings.
- **Dustbin** - sits on the icon bar and allows files to be deleted by simply dragging them to its icon.

Outstanding Value

£14.90 inc VAT

Desktop PC Disc Reader, Background Text Printer, 3 Exciting Outline Fonts in

MARC THREE DISC

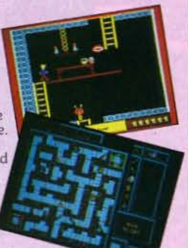
plus:

- **Sticky BackDrop** - places icons anywhere on the desktop
- **Application Shell Generator** for creating application directories, sprites and !Run files.
- **Wimp** Front End for the **Basic Editor**
- **Watchdog Anti-Virus** - protect your hard and floppy discs from viruses
- **Keystrip Generator** (both 9- and 24- pin matrix printer versions)
- **Encode** - a file encryption utility
- **CMOS RAM Manager**
- **Ovation Clip-art** - from Beebug's highly successful DTP package Ovation
- **Amaze** - a graphically superb and entertaining game
- Some of the best **Maestro** music files
- **Advanced Desktop Presentation Creator** - screen display with a choice of different fades
- **Palette Files for Colour Printers**
- A complete set of **ArcScan** index data for RISC User Magazine Volume 3

£14.90 inc VAT

7 Original Archimedes Games in

ArcOmnibus



- **Amaze** - a graphically superb sliding block game with a difference.
- **Cribbage** - an excellent implementation of the well known card game.
- **Moric** - a colourful 'ladders and levels' game.
- **Ogre's Lair** - a highly entertaining arcade type game, providing hours of fun.
- **Pick a Pair** - a colourful game testing your skills of observation and memory.
- **BalloonMan** - burst the balloon - a Pacman style of game.
- **Dominoes** - a Desktop version of the classic game of dominoes.

File Handling for All

by David Spencer and Mike Williams

£9.95

File Handling for All is a comprehensive book which covers all the requirements of data storage and processing by computer, using the popular BBC Basic programming language for the examples. It is aimed at anybody interested in File Handling and Databases, whether beginners or more advanced users, and will appeal to all who want to learn more of this important subject.

The book starts with an introduction to the rudiments of file handling, and in the following chapters develops an in-depth look at the different types of files e.g. serial files, indexed files, direct access files, and searching and sorting. A separate chapter is devoted to hierarchical and relational database design, and the book concludes with practical advice on developing file handling programs.

The associated disc (£4.75) contains complete working programs based on the routines described in the book and a copy of Filer, a full-feature Database program.

RISC developments Ltd

117 Hatfield Road,
St. Albans, Herts AL1 4JS
Telephone: (0727) 40303
Fax: (0727) 860263

Order form

Wimp Programmer's Toolkit	£19.95	Stock Code **PWPTa**	☐
Arcscan III	£18.95	Stock Code **PAS3a**	☐
Arcscan Library Disc	£ 9.95	Stock Code **PAL1a**	☐
Desktop Applications	£14.90	Stock Code **PDA1a**	☐
mArc Three Disc	£14.90	Stock Code **1406a**	☐
ArcOmnibus Games Disc	£14.90	Stock Code **PAOMa**	☐
File Handling for All book	£ 9.95	Stock Code **BKO2b**	☐
Disc supporting the book	£ 4.75	Stock Code **BKO3a**	☐

*Please add p&p: **a:** £1-UK, £2- Europe and £2.60 elsewhere; **b:** £2-UK, £3-Europe and £5.50 elsewhere*

I enclose a cheque for £ ______
(all cheques must be in pounds sterling, drawn on a UK bank) or, please debit my Access/Visa account No.

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Card Expiry Date ______ Signature ______

Name ______

Address ______

MO ______ Post Code ______

A3000 is helping RAF recruiting

YOUNGSTERS thinking of joining the RAF are being helped in their decision by Acorn's BBC A3000 computers which are at the heart of 12 new interactive systems developed for the RAF's recruitment trailers which travel around the UK.

Designed by Simis Ltd of Guildford, who also wrote Interdictor, Interdictor II and Mig-29 Fulcrum, the systems allow youngsters to get a feel for the complexities of flying the RAF's Tornado. One of their first appearances was at the Royal Tournament at Earls Court.

Each potential recruit is allowed four minutes to complete one of three pre-defined missions which include air-to-air refuelling, air-to-air combat and landing an aircraft using the instrument landing system on an airfield.

Software designer Jonathan Newth believes the hardest of the three is the air refuelling simulation.

MiG-29
FULCRUM
Software, Instructions, Artwork and Packaging (c)1991 Domark Software Ltd.

"Trying to position an aircraft precisely behind a tanker in three dimensions takes good co-ordination and timing, especially when you have to do it against the clock", he said. The simulations are so popular that recruitment staff faced the problem of members of the public treating them as arcade games.

To remedy this, an on-screen multiple choice questionnaire has been included which tests users' knowledge of the RAF. Only those who successfully answer the questions get to try the simulations.

"As a simulation can be based around anything that can be mathematically modelled and graphically represented, many companies that would never have thought of using this type of system in the past can now take advantage of it to increase their profiles", said Chris Tubbs, director of Simis.

The company have also designed a flight simulator based on the BBC A3000 for British Aerospace to use on exhibition stands. It was first used in Canada and is now appearing at a number of exhibitions all over the world.

Added Chris Tubbs: "The Acorn computer was chosen because of its exceptional graphics performance and also by the fact that the BBC A3000 is easily portable".

Boxing clever

MINERVA (0392 437756) are about to launch the next step on from their popular Graph Box package. Graph Box Professional includes a number of enhancements and is designed for scientific and business use.

It features more sophisticated graphs and includes statistical analysis and a number of chart search facilities including "line of best fit" and "curve of best fit".

With Graph Box Professional, Archimedes users can measure between points on their graphs, can print from other packages and have the facility for a number of outline fonts not available for users of Graph Box.

Although the price has not been fixed, it is expected to be £129.99.

Packing in an ARM 3 upgrade

WATFORD Electronics (0923 37774) have announced what is claimed to be the smallest, most compact ARM3 upgrade available for the Acorn range of computers – the Watford ARM3 MkII.

The new card measures 44mm x 53mm and stands just 6mm above the original Arm2 socket. And the price of the 25MHz ARM3 is equally small at an incredible £199.

This design has been achieved using latest CAD techniques which give a reliable four layer surface mount printed circuit board with separate supply and ground planes.

A new purpose-built 84 way gold plated connector ensures that firm contact is made with the original ARM2 socket.

The upgrade comes complete with a special tool and full fitting instructions. For BBC A3000 machines or users not into DIY installation, Watford will arrange for your machine to be picked up, fitted with the card then returned.

Support software provided on disc gives a CacheKey module and a DeskTop application to control the ARM3. The CacheKey module activates the ARM3 through a simple combination of keys which can be user-defined.

The DeskTop application gives an indication of whether the cache is on or off and controls its operation by clicking on an icon.

Execution speeds vary with different programs, but Watford say a common factor of two is average while factors of three and up to five have been obtained.

Huge performance increases have been obtained using the PC emulator which runs three to four times faster with the Watford ARM3.

More ARM3s

TWO other Archimedes suppliers, Aleph One (0223 811679) and Atomwide (0689 838852) have joined forces to announce an ARM3 upgrade for the A3000.

It increases the speed of all Risc OS applications, file operations and printing while retaining full compatibility with properly written software.

The unit has so impressed Acorn themselves that they ordered 71 in one month alone.

Atomwide have teamed up with Aleph One to offer a professional fitting service which allows the Aleph One ARM3 upgrade to be installed inside the A3000. The A3000 ARM3 package costs £399.00 excluding VAT but including fitting and testing and courier collection and return usually within five working days

The package is also available with an Atomwide 4Mb ram upgrade for £529.00 excluding VAT but with the same collection and fitting service.

Fax turns scanner

THE Amstrad fax machine can now be linked to a BBC A3000 or Archimedes to become a 200dpi scanner in addition to its many other features.

Spacetech (0305 822753) have designed a small interface which plugs into the Econet space in the A3000 or Archimedes and connects to the serial port in the fax machine.

Software provided with the Faxscan card allows the fax machine to be used as a 200dpi scanner. It also allows the user to send facsimile messages direct from the Risc OS desktop, so DTP, Draw or Paint as well as text files can be sent without having to print out the document first. The software is fully Risc OS compliant and multi-tasking.

Card and software cost £99.50 plus VAT, or £49.75 if the Amstrad fax is bought from Spacetech.

Special Offers!

RISC USER

Highly Professional Magazine
Supporting Magazine Disc
Quality Software
Technical Backup

FREE!
with your subscription

RISC User October Magazine Disc

containing all programs from RISC User October 1991

plus

as usual a selection of exciting **BONUS items**

The most popular subscription magazine devoted solely to the Archimedes range of computers including the A3000.

RISC User offers 10 magazines a year which typically contain:

News on the world of Archimedes
Reviews of the latest products
Ready to run applications
Utilities, routines and advanced programming techniques
Programs and articles on sound and graphics
Series of articles for all spheres of interest:
- 'Into the Arc' — tutorial series for beginners
- 'Mastering the Wimp' — series on Wimp programming
- 'Under the Lid' — hardware series
- 'Assembler Workshop' — all about ARM Assembler
- 'Beginning 'C' — series on C language
- 'DTP/WP' — advice on using commercial software
- 'Arcade' — a round-up of the latest games

Hints and tips
Postbag for your letters and answers to your questions
Technical queries and expert answers

Magazine discs, containing all programs published in the magazine plus some additional items, are available to order or on subscription.

The magazine and support group exclusively for users of the Archimedes

BEEBUG

BEEBUG October Magazine Disc

full of high quality programs

FREE

when you subscribe to BEEBUG Magazine

The ONLY significant magazine still dedicated entirely to users of the BBC Model B and Master series.

In April, BEEBUG commences its 10th year of publication, providing professional, useful and interesting information to thousands of subscribers. Each magazine offers:

A variety of useful programs to type in, or run from disc:
- Stand-alone applications
- Handy utilities and useful routines
- Entertaining games

News from the BBC world
Reviews of new products, and comparative surveys
Series covering a range of interests:
- 'First Course' series for beginners
- 'Workshop' for the more advanced programmer
- '512 Forum' for users of the Master 512
- 'Practical Assembler' for Assembly language programmers
- 'BEEBUG Education'

Informative articles
Hints and tips
Postbag for your letters and answers to your questions and lots more

All programs published in the magazine are available on disc, to order or on subscription.

10 years of publication

With your subscription you will receive not only 10 magazines a year, but you will benefit from a professional organisation with 9 years of experience in software, hardware, computing publications and support.

- Showroom with friendly professional staff, where you can try out the latest software and hardware
- BEEBUG's own quality software and hardware, with special discounts for magazine subscribers
- A large range of other products, and a Retail catalogue mailed free to magazine subscribers
- Speedy mail-order service
- Workshop repairs by qualified staff
- Trade-in service to upgrade your equipment

Order Form

I would like to subscribe to **RISC User Magazine** starting with the October issue, and receive in addition the *October RISC User Disc* Free ☐

I would like to subscribe to **BEEBUG Magazine,** starting with the October issue, and receive in addition the *October Magazine Disc* Free ☐
(please indicate whether you want 5.25" ☐ or 3.5" ☐ disc)

RISC User/BEEBUG Subscription Rates (1 Year): **£19.90** UK, BFPO, Ch.I, £29 Europe+Eire, £35 Middle East, £38 Americas+Africa, £41 Elsewhere

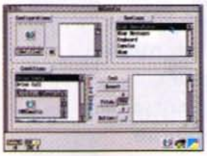
Joint Subscription RISC User and BEEBUG (1 Year): **£29** UK, BFPO, Ch.I, £43 Europe+Eire, £52 Middle East, £57 Americas+Africa, £61 Elsewhere

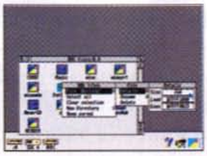
I enclose a cheque for £ ____________ (all cheques must be in pounds sterling, drawn on a UK Bank) or, Please debit my Access/Visa account No.

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Card Expiry Date ____________ Signature ____________
Name ____________
Address ____________
MO ____________ Post Code ____________

RISC DEVELOPMENT
117 Hatfield Road, St. Albans, Herts AL1 4JS
Telephone 0727 40303 Fax: 0727 860263





There's a Really good range for the Arc

LIVING up to its name, the recently formed Really Good Software Company is already coming up with a range of innovative and useful programs for Archimedes users.

Keyword Thesaurus version 1.51 is a Risc OS compliant Thesaurus with 10,000 words included on one 3.5in disc. Users can type in their word then choose an alternative with a similar meaning from the Thesaurus.

In addition words can be dragged from other applications or if the spelling of the source word isn't known exactly, part of it can be entered and possibilities from the Thesaurus are matched to it.

Once a suitable alternative word is chosen, it can be dragged directly from the Thesaurus window into whatever word processing package is being used. Soon to be added to Keyword Thesaurus v1.51 is a free word editor which will allow users to add their own words. Price £29.95.

MultiLink is currently the only multi-tasking serial link to connect 8 bit BBC Micros and Archimedes machines. Loaded from disc into the Archimedes, it opens a window to the disc in the BBC Micro and allows the user to drag files directly between the two machines.

Activated by two simple commands on the BBC Micro and a double-click on the Archimedes, the set-up takes just 30 seconds. The package costs £24.95 and can be supplied with the special cable for an additional £9.

Rounding off the packages currently available from The Really Good Software Company is MultiTTX, a front end for the Morley teletext adaptor.

Fully multi-tasking and Risc OS compliant, it allows Archimedes users to capture teletext pictures and text on the desktop as well as offering the standard teletext functions such as page selection, hold page, reveal hidden text and save page in teletext format or as text. Price, £29.95.

Two further packages are soon to be added to the Really Good range.

Twilight is a sophisticated screen save/data security program. It blanks the Archimedes screen with a variety of animations or designs to prevent image burn-in on the monitor while the computer is not in use.

Time delay
Password
Change password
Current effect
Just a text message
Text menu
Option two
Effect2
Effect3
Thingy
Save
Cancel
OK

A number of different pattern modules are supplied or there is a facility for users to create their own. They can be activated after a user-specified time and the program is multitasking so printing can continue in the background if required.

Restoring the screen occurs either by pressing a key, moving or clicking the mouse or, optionally, when a program outputs to the screen.

Twilight also includes a password feature to prevent unauthorised people using the machine while the owner is away, plus a facility for a user-defined hot key to make the screen go to sleep instantly – two useful features for office use where confidential data is used.

One save screen module has a memo facility for leaving messages on the default screen while you're away from your computer. Twilight will cost £29.95.

Also due soon is ARCoustic. Designed to make using an Arc an acoustic experience, it allows you to attach sound samples to thousands of different Archimedes events so that sound effects can accompany anything that happens on your machine.

For example, the *insert disc* request can be accompanied by a siren and *File not found* could blow a raspberry – the possibilities are endless. A whole selection of samples are supplied with the program, but any sound samples can be used.

One special feature is that different users can have their own personal sets of sounds on the same machine which can be set up with a couple of clicks of the mouse. ARCoustic will cost £24.95.

For further details of all products, write to The Really Good Software Company, P.O. Box 60, Ashton under Lyne, OL5 9WW.

Graphics package enhanced

RENDER Bender II is the new graphics package from Clares (0606 48511) which includes a suite of four Archimedes programs for generating three dimensional ray-traced pictures and animations.

Building on the success of the original Render Bender, it includes many enhancements. It is fully Risc OS compliant and will even ray trace in multi-tasking mode.

And another major difference is that it is much easier to use than the original Render Bender thanks to Illuminator, a front end program that lets you draw your scenes using a package similar to Draw.

Text can be added, objects animated manually and once scenes are defined, they can be taken into Render Bender to be ray traced and from there into the Animator package for animation.

Also included in Render Bender II is Converter which converts a compressed screen into a sprite file and allows the user to extract individual screens from an animation file.

Render Bender II costs £135.

Files on show

DESIGNED for use with any DTP or design work, !Glimpse is a new utility for BBC A3000 and Archimedes computers from Sherston Software (0666 840433) which displays miniature versions of all !Draw and sprite files within its own window .

Users can browse through and pick the one needed to load into any application. It also allows viewing of multiple sprites within a sprite file.

The price will be pitched at under £10.

Stop Press Electron upgrade

AFTER many months work, Andrew Hildig of Slogger (0736 787272) reports that he is now close to completing his Electron upgrade to AMS Stop Press – developed to take advantage of the extra memory offered by the Master Ram Board.

As well as supporting all the standard features of AMS Stop Press, the upgrade is an internal version which uses no cartridge slots of Plus1 or Rombox Plus. It operates under Acorn ADFS, Slogger SEDFS, Pegasus 400, AP3, Solidisk and Cumana EDFS.

Designed for ease of use with no changing of discs and pages saved as standard files, it uses the full 64k memory of the Electron and scrolls much faster than standard Stop Press.

Stop Press 64 uses a standard mouse, 5.25 and 3.5in discs and reads View or Starword text files.

Hardware options are an internal board which fits inside the Electron case using the spare Basic Rom page and needing soldering, an internal board complete with user port for mouse, a cartridge needing no soldering or a cartridge with mouse user port.

Stop Press 64 will cost between £60 and £80 depending on hardware. Andrew's next Electron project is a digitiser.

Triplets come cheaper

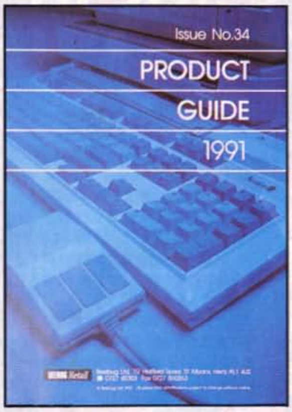
UNDER a special offer by Panda Discs, their music discs are being sold at reduced prices for the remainder of the year.

For people buying three or more, the discount price is £4 per disc. Those buying less than three still pay the full price of £6.

Available discs include 16 volumes for Hybrid Technology's Music 5000, three volumes for Hybrid's earlier Music 500 and three volumes for the System Music System originally known as the Island Logic Music System.

A list of all the tracks on each disc can be obtained by sending a stamped addressed envelope to Panda Discs, Four Seasons, Tinkers Lane, Brewood, Stafford, ST19 9DE..

The Product Guide



Beebug have published a 72 page full colour A4 product guide for users of BBC, Master, A3000 and Archimedes computers. It contains information on thousands of products that are available now for your computer. Whichever system you use, you will find this illustrated and helpful guide to be an invaluable source of information. Everything is covered from complete systems right down to spare parts. As an added feature comparison charts for monitors and printers are provided along with compatibility and upgrade information.

Special Offer on Archimedes Computers

To coincide with the launch of our new catalogue Beebug are making some very special offers on new Archimedes systems.

Archimedes A410/1
Free 1 Mb RAM & 42 Mbyte Hard Drive

The A410/1 is supplied without a hard drive. At no extra charge we will install a 42 Mbyte high speed, top quality, branded IDE hard drive. Should you prefer an 89 Mbyte or 105 Mbyte instead, these are available for an additional £100 or £175 respectively.

Price £1099 With Colour Monitor £1319 (Acorn) or £1299 (CUB A3000)

Advanced Learning Curve
Free 2 Mb RAM & 89 Mbyte Hard Drive

The A420/1 Learning Curve is normally supplied with 2 Mb RAM and a 20 Mbyte hard drive. We will increase the memory to the 4 Mb maximum and replace the 20 Mbyte drive with an 89 Mbyte high speed, top quality, branded IDE hard drive. Should you prefer 105 Mbyte instead of the 89 Mbyte, this is available for an additional £75.

Price £1299 With Colour Monitor £1519 (Acorn) or £1499 (CUB A3000)

These offers replace any previously published offers and are for a limited period only. All prices exclude VAT.

Hurry While Stocks Last.

Official Orders From Education Welcome

BEEBUG

For your Free A4 Colour Product Guide please write or telephone:

117 Hatfield Road, St. Albans, Herts AL1 4JS
TEL 0727 40303 FAX 0727 860263

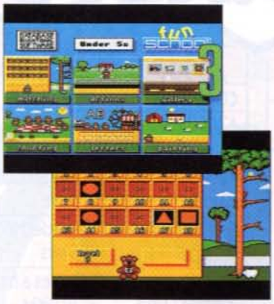
More fun than school?

FOLLOWING the run-away success of Fun School 2, the chart-topping and award winning multi-format educational package, Europress Software (formerly Database Software) have released their new selection, Fun School 3, which is set to do even better with improved graphics speed, playability, sound and now full conformance to the National Curriculum.

The complete set is once again divided into three age groups with six programs in each level and the popular Fun School 2 characters.

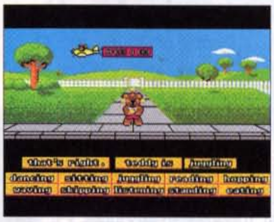
For the Under 5's there's the Fun School Teddy featured in programs covering shape matching, actions, picture gallery, counting, matching letters and painting.

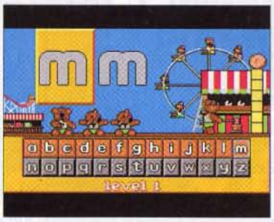
The 5 to 7's have Freddy the Frog in Journey which involves mapping and reading, Collect for sums, buying toys in the Toyshop, introduction to Electricity, a simple teletext-style database called FunText and a telling the time game.

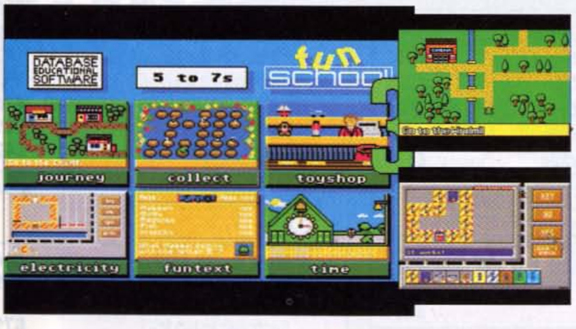

Under 5s
fun school 3

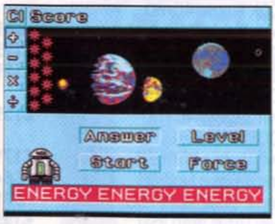
The oldest age group, Over 7's, has the character Robbie the Robot in a word search program, a sort of Turtle Logo draw program, mental maths in Planetary Maths, directions and distances in Treasure Search, another Database with a built-in quiz system, and Sentences where children must correct errors.

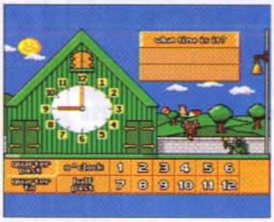
Each set contains a high quality manual packed with notes on how to incorporate the software with other aspects of learning. Each set costs £24.99.


that's right. teddy is jumping
dancing
sitting
juggling
reading
hopping
waving
skipping
listening
standing
eating

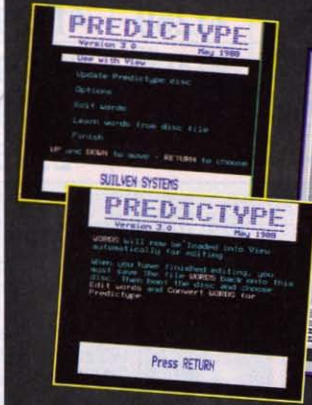

m m
a b c d e f g h i j k l m
n o p q r s t u v w x y z
level 1


DATABASE EDUCATIONAL SOFTWARE
5 to 7s
fun school
journey
collect
toyshop
electricity
funtext
time


Score
+
-
x
÷
Answer
Level
Start
Force
ENERGY ENERGY ENERGY


what time is it?
quarter past
o'clock
quarter to
half past
1 2 3 4 5 6
7 8 9 10 11 12

FREEBIES


PREDICTYPE
Version 3.0
May 1988
Use with View
Update Predictype disc
Options
Edit words
Learn words from disc file
Finish
UP and DOWN to move - RETURN to choose
SUILVEN SYSTEMS
PREDICTYPE
Version 3.0
May 1988
Press RETURN

WORDS will now be loaded into View automatically for editing

When you have finished editing, you must save the file WORDS back onto this disc. Then boot the disc and choose Edit words and Convert WORDS for Predictype

TRAINING
Open Technologies
Wordwise Plus
Literacy Pack
TUTOR'S BOOKLET

THIS month it's the owners of the 8 bit BBC Micro that benefit from Scetlander, renowned for their high quality educational software, are giving away five copies each of their top-selling packages Predictype and the Wordwise Plus Literacy Pack.

Predictype 3 is a powerful tool for all keyboard users. Each time you start a new word Predictype will offer you a selection of the most likely ones you intend to type – you just select the one you want. Predictype increases both speed and, more importantly, accuracy when typing in text. But Predictype doesn't just present a fixed selection of words, it learns as you type, and adjusts itself to your style so its guesses are more likely to be correct.

Predictype 3 requires a 16k bank of sideways ram and will work with Wordwise, Wordwise Plus, View and Writer. Its usual price is £39.99.

The **Wordwise Plus Literacy Pack** is a completely integrated set of programs – written in the Wordwise Plus programming language – and related materials that provide a unique interactive software package for literacy training.

Easy for both tutor and student, it provides practice for a wide range of literacy skills including spelling, comprehension, letter writing and filling in missing words. Many of the programs also offer feedback to show how the student is progressing.

The pack requires Wordwise Plus to be fitted in the machine it is used on, although the training materials are still largely valid and the text files are compatible with the original Wordwise. The complete set normally costs £48.99

What to do

Specify which product you would prefer – Predicttype 3 or Wordwise Plus Literary Pack – and write to: *Micro User Freebie Offer, Scetlander, 74 Victoria cresent Road, Glasgow G12 9JN.*

Free copies of the packages will go to the first TEN readers whose names and addresses are pulled from the hat on September 22.

FREE 1 YEAR'S ON-SITE MAINTENANCE with Archimedes Micros

College Computers

FREE DELIVERY on all Archimedes Micros

ARCHIMEDES

SYSTEM	ENTRY	COLOUR	MULTISCAN
A3000	£599	£769	—
A3000 Learning Curve	£699	£869	£929
A410/1	£1099	£1269	£1329
A420/1 Learning Curve	£1299	£1469	£1529
A440/1	£1699	£1869	£1929
A540/1	—	—	£2995

FREE OFFERS ON ARCHIMEDES MICROS

COMPUTER	FREE OFFER
A3000	Upgraded to 2Mb RAM on board + Monitor Stand + 10 Disks
A3000 Learning Curve	Upgraded to 2Mb RAM on board + Monitor Stand + 10 Disks
A410/1	Upgraded to 2Mb RAM & 20Mb Hard Disc + 10 Disks
A420/1 Learning Curve	Includes a free Epson LX400 Printer + Cable + 10 Disks
A440/1	Includes a free Epson LQ400 24 pin Printer + Cable + 10 Disks
A540/1	Includes a free Epson LQ550 24 pin Printer + Cable + 10 Disks

A3000 ACCESSORIES

3.5" External Drive	£97
Monitor Stand	£15
External Podule Case	£12
Serial Upgrade	£16
A3000 Technical Manual	£28
Dust Cover Micro/Monitor	£5
Dust Cover Micro	£9
User Port/Midi Upgrade	£44
UHF TV Modulator	£29

RAM UPGRADES FOR ARCHIMEDES

A3000	Upgrade to 2Mb RAM	£49
A3000	Upgrade to 4Mb RAM	£164
A305	Upgrade to 1Mb RAM	£48
A305/A310	Upgrade to 2Mb RAM	£229
A305/A310	Upgrade to 4Mb RAM	£419
A410/1	Upgrade to 2Mb RAM	£37
A410/1	Upgrade to 4Mb RAM	£99
A410/1	Upgrade to 8Mb RAM	£725
A420/1	Upgrade to 4Mb RAM	£72
A420/1	Upgrade to 8Mb RAM	£679
A440/1	Upgrade to 8Mb RAM	£569
R140	Upgrade to 8Mb RAM	£569

CONCEPT KEYBOARDS

A4 Standard Keyboard inc BBC Software	£115
A3 Standard Keyboard inc BBC Software	£140
A4 Archimedes Keyboard	£116
A3 Archimedes Keyboard	£141

PLOTTERS

ROLAND

DXY-1100	£504	GRX-300	£2766
DXY-1200	£638	GRX-400	£3620
DXY-1300	£839	DPX & GRX Include	
DPX-2500	£2366	12 months on-site	
DPX-3500	£3276	maintenance	

ARCHIMEDES ACCESSORIES

NEW Multitasking RISC OS	£28
3.5" 800K 2nd Floppy Drive (305/310)	£109
5.25" 800K External Floppy Drive	£84
I/O Podule (Analogue & User Port & 1MHz Bus)	£75
MIDI add-on to I/O Podule	£27
MIDI Expansion Card	£64
Econet Network Board	£43
IEEE Interface Adaptor	£265
16 Bit Parallel I/O Card	£193
Software Developers Toolbox	£147
Floating Point Unit	£449
SCSI Adaptor Expansion Card	£159
Keyboard Extension Lead	£5
2 Podule Backplane	£24
4 Podule Backplane	£37

HARD DISK DRIVES (ST506)

20Mb for 410 ST506	£159
40Mb for 410 ST506	£235
53Mb for 410 ST506	£POA
A3000 20Mb + Podule	£335
A3000 40Mb + Podule	£449

SCSI HARD DRIVES FOR A400

Supplied complete with controller card.

52Mb Internal	£348
105Mb Internal	£549
170Mb Internal	£829
210Mb Internal	£899

COMMUNICATIONS

Amstrad SM2400 V22BIS	£160
Miracom WS4000	£100
Miracom WS3000 V22	£186
Miracom WS3000 V22BIS	£228
Pace Linnett Plus	£98
Pace Linnett 1200 V22	£153
Pace Linnett 2400 V22BIS	£204
Hearsay comms software	£48
BBC/Master Modem Cable	£14
Archimedes Modem Cable	£14

BBC MASTER

MASTER 128K with View, Viewsheet, ADFS BASIC Editor & Terminal and our Special FREE OFFER, A 5.25" Double Sided, 40/80 Track switchable 400K Disc Drive, 20 Floppy Discs and Monitor Stand.

£399

BBC B and MASTER ACCESSORIES

Turbo 65C102 Add-on-Module	£113
Econet Module for Master	£44
Twin ROM Cartridge for Master	£12
Master Reference Manual I (No VAT)	£13
Master Reference Manual II (No VAT)	£13
Master Advanced Ref Manual (No VAT)	£16
64K Upgrade Kit for B+	£31
Acorn 1772 DFS Complete Kit	£47

MASTER 128 CUMANA DISC DRIVES

5.25" 200K Single 40T No PSU	£64
5.25" 200K Single 40T With PSU	£79
5.25" 400K Single 40/80 Switchable No PSU	£79
5.25" 400K Single 40/80 Switchable With PSU	£89
5.25" 400K Dual 40T No PSU	£125
5.25" 400K Dual 40T With PSU	£149
5.25" 800K Dual 40/80 Switchable No PSU	£159
5.25" 800K Dual 40/80 Switchable With PSU	£179
3.5" Single Drive No PSU	£64
3.5" Single Drive With PSU	£79
3.5" Dual Drive With PSU	£125
3.5" + 5.25" 40/80 Switchable	£169

THE
INTELLIGENT
CHOICE
FOR
Acorn

College Computers

SPECIALISTS in the supply of COMPUTERS to PRIMARY, SECONDARY and TERTIARY EDUCATION

ARCHIMEDES SOFTWARE

ART/DESIGN/GRAPHICS	
Artisan II	£43
Atelier	£63
Autosketch II	£66
Gamma Plot	£38
Graph Box	£57
Mogul	£18
Poster	£77
Pro Artisan	£71
Render Bender 2	£56
Sigma Plot	£38

DATABASES	
AlphaBase	£34
Genesis	£64
Multistore	£192

DESKTOP PUBLISHING	
Acorn DeskTop Publisher	£125
Impression Junior	£77
Impression II	£131
Tempest	£93

INTEGRATED	
Desktop Office	£96
Logistix	£77
Pipedream 3	£118

We also carry a wide range of GAMES and LEISURE software. Call for details.

LANGUAGES	
ANSI C Rel 3	£122
Assembler	£145
Fortran 77	£75
ISO-PASCAL	£75
LISP	£145
Prolog X	£145

SILICON VISION	
Arc PCB Professional	£269
Gerber Plot	£91
Realtime Solids Modeller	£132
Risc Basic	£72
Robo Logo	£52
Solid Cad	£115
Solid Render	£115
Solid Tools	£269
Super Dump	£19
Super Plot	£28

SPREADSHEETS	
Intersheet	£23
Schema	£90
Sigmasheet	£38
Viewsheet	£44

WORDPROCESSORS	
1st Word Plus II	£68
Easiword	£29
Interword	£23
Pendown Archi	£47
View	£44

LASER PRINTERS

FREE Parallel Printer Cable With All Lasers

	PPM		
Brother HL-4	4	*	£610
Brother HL-8e	8	*	£946
Brother HL-8PS Postscript	8	*	£1486
Canon LBP-4	4	*	£586
Laser Direct Hi-Res Card for LBP4			£319
Canon LBP-III	8	*	£984
Canon LBP-IIIT Dual Bin	8	*	£1378
Canon LBP-IIIR Dual Bin Duplex	8	*	£1486
Epson EPL-7100	6	*	£640
Epson EPL-7500 Postscript	6	*	£1186
HP Laserjet IIIP	4	*	Call
HP Laserjet III	8	*	£1025
HP Laserjet IIID Dual Bin Duplex	8	*	£1650
IBM 4019E XL	5		£665
IBM 4019 XL	10		£945
Kyocera F800T	8	*	£940
Laser Direct	6		£844
NEC Silentwriter 2 S60P P/Script	6	*	£1200
NEC Silentwriter 2 266	8	*	£720
NEC Silentwriter 2 290 P/Script	8	*	£1408
NEC LC890XL Postscript	8	*	£2370
NEC Colourmate PS P/Script		*	£5489
OKI Laser 400	4	*	£538
OKI Laser 800	8	*	£950
OKI Laser 840 P/Script	8	*	£1220
Panasonic KXP4420	8	*	£639
Panasonic KXP4450i Dual Bin	11	*	£1018
Panasonic KXP4455 D/Bin P/Script	11	*	£1548
QMS PS410 Postscript	4		£1461
QMS PS810 + Postscript	8		£2000
QUME Crystalprint WP Plus	6	*	£687
Qume Crystalprint S/Series II	6	*	£1057
Qume Crystalprint Publisher PS 2Mb	6	*	£1560
Star LP-4	4	*	£696
Star LP-4PS Postscript	4	*	£830
Star LP-8 III	8	*	£978
Star LP-8 II Starscript P/Script	8	*	£1180

All printers marked by an * include 12 months on-site maintenance.

MONITORS

SPECIAL OFFER

14" Multiscan Hi-Resolution 0.28 Dot Pitch, 1024 x 768 **£247**

MICROVITEC	
1431 Standard Resolution	£165
1451 Medium Resolution	£199
14M325 (CUB 3000) Medium Res.	£179
1441 High Resolution	£349
2040CS 20" High Resolution	£659
Touchtec 501 Touch Screen	£234
PHILIPS	
BM7502 12" Hi-Res Green	£68
CM8833/II 14" Medium Res	£169
NEC	
Multisync 3D 14" 0.28 Dot Pitch	£334
PANASONIC	
14" Super Hi-Res 0.29 Dot Pitch	£235
TAXAN	
770LR 14" 0.31 Dot Pitch Low Rad	£375
775 Plus 14" 0.28 Dot Pitch Hi-Res	£373
795 Trinitron 0.26 Dot Pitch	£422
875 17" 0.26 Dot Pitch	£719
VIDC Enhancer Board	£24

PRINTERS

FREE Parallel Printer Cable With All Printers

Canon BJ10e	£193
Canon BJ300*	£353
Canon BJ330*	£398
Citizen 120D +	£95
Citizen 124D	£145
PN-48	£210
Swift 9	£137
Swift 24	£199
Swift 24X	£293
EPSON	
IX-400	£109
LX-850	£150
FX-850	£283
FX-1050	£358
DFX-5000	£1094
DFX-8000	£1995
LQ-200	£189
LQ-450	£199
LQ-570	£239
LQ-870	£419
LQ-860 Colour	£461
LQ-1010	£319
LQ-1070	£369
LQ-1170	£519
LQ-1060 Colour	£624
LQ-2550 Colour	£709
SQ-850	£439
SQ-2550	£635
Hew/Pack Thinkjet*	£270
Hew/Pack Quietjet*	£305
Hew/Pack Quietjet Plus*	£389
Hew/Pack Deskjet 500	£298
Hew/Pack Paintjet*	£588
Hew/Pack Paintjet XL*	£1085
Hew/Pack Rug/Writer*	£929
IBM Proprinter 24P	£220
IBM Series II 2380	£280
IBM Series II 2381	£349
IBM Series II 2390	£320
IBM Series II 2391	£380
IBM Quickwriter 5204	£496
IBM Execjet 4072	£446
Integrex Colour Jet	£499
Mannesman Tally MT81	£97
Nec P20	£185
Nec P30	£249
Nec P60	£368
Nec P70	£430
Nec P90	£648
Panasonic KXP1081	£104
Panasonic KXP1180	£105
Panasonic KXP1123	£147
Panasonic KXP1124i	£208
Panasonic KXP1695	£295
Panasonic KXP1624	£288
Panasonic KXP1654	£426
STAR	
LC10	£104
LC20	£122
LC200 Colour	£158
LC15	£180
LC24-10	£149
LC24-200	£185
LC24-200 Colour	£222
LC24-15	£299
ZA200 Colour*	£256
ZA250 Colour*	£319
XB24-200 Colour*	£319
XB24-250 Colour*	£387

Printers with * inc 1 years on-site maintenance.

DELIVERY Archimedes Micros only: Free Delivery
Hardware: £7 + VAT per box
Software: £7 + VAT per order
Lasers: £15 + VAT per printer
Next Working Day Service - call for details. UK Offshore - call for details

ALL PRICES EXCLUDE VAT

CREDIT CARD MAIL ORDER HOTLINE

☎ **081-680 5686**

FAX: 081-760 9861

College Computers

Prices are subject to change without notice. Please check suitability with the manufacturers before ordering. Goods are not offered on a trial basis. Orders are accepted subject to our standard conditions of sale – available on request. E&OE.

Subject to availability despatch is normally effected within 2 days from receipt of cleared payment. Please allow 7 working days for cheque clearance. All orders will be fulfilled within 28 days unless otherwise notified.

**College Computers, 14 Emmabrook Court, Sea Road,
Rustington, Littlehampton, Sussex BN16 2NG**

To: **College Computers, 14 Emmabrook Court, Sea Road,
Rustington, Littlehampton, Sussex BN16 2NG.** I wish to order

QUANTITY	DESCRIPTION	PRICE

Please state disk size__________

I enclose cheque/PO for £__________inc VAT

or charge my Access/Visa No: Exp. date__________

Delivery	
Total	
VAT	
Total £	

Name__________

New/Old customer (please delete). Account No. (if known)__________

Address__________

Postcode__________ Tel No:__________

MU10

THE MAD hatter

Burgers, bikes and booze

THIS is the final part of the solution to *Dennis through the Drinking Glass* and our hero finds sanctuary at last – after a number of vicissitudes. Try saying *that* when you're plastered.

We left Dennis at the Liberal Party Headquarters – in a phone box with Cyril Smith – so as a final charitable act he must feed Cyril and then shamble off north, west, north to the BBC Studios and Robin Day.

He must give Ken to Robin and then go northwest to Leon Brittan's cell. Here he needs to take the key and then throw it away before going southeast to Shepherd's Bush for a well-earned drink. Now it's a question of heading west on to the M4 motorway and then south to Heathrow.

Here we catch the 747 and – goodness me – there's Norman Tebbit and a parachute on board: Eject Tebbit and you will find yourself in a hotspot and a fairly familiar situation.

East takes you to Saudi Arabia and a confrontation with a camel, Geoffrey Howe and your son Mark (where am I?) Thatcher. Stop Howe and you can then safely ignore your filial favourite.

One move north takes you to the Vatican balcony and the Pope: If you know your good manners and kiss the ring you'll find yourself instantly transported to Paris. A move west brings you to Francis Mitterand, some French mustard and a CAP.

Have a drink to gather your strength and then take the mustard. Take the Cap and rip it up – which is something our Minister of Agriculture should have done long ago – and go east to a Russian cell. Once the ticking has stopped, lift the bunk.

Now go down into the tunnel and wait to go to the bolt hole with the button. Go up to Michael Hesseline, give mole and receive a sovereign as a reward: Take it and have a drink.

Next go north to Trafalgar Square and then east to Bruce Kent. Give him the collar and take the CND badge in return. Now go northwest to Princess Di in the park and south to Macdonalds where Casper Weinberger is. Put mustard on Casper and go southwest to Shepherd's Bush, west to the M4 and have another drink.

Wear the badge and go west to Greenham Common, west again to Plymouth: Ignore the dreamboat but take the key and then catch the boat to Northern Ireland.

Drop the badge here, and take the foghorn then go west to Ian Paisley. Give him the foghorn and have a drink. Now go south to Enoch Powell and the broken treaty. Give him the sovereign and you'll find yourself transported back to London by the banks of the Thames.

Take the raincoat and move southwest, north and east. Take the flag and go south to the hospital and Sir Keith Joseph. Go BUPA to the phonebox and dial 999 before having a medicinal drink.

Insert money to go to the cycleway then get on bike to find Nigel Lawson. Go for tax cuts, less, select Winchester, tip and revolution are the required input here, after which you won't be able to see the wood for the trees.

Wear the raincoat, enter Turns (to check how you are doing) have a drink and weave south to Mary Whitehouse and a blue film. Flash, drop raincoat, go east to General Galtieri, give him the flag, unlock the door to the Gravediggers' Arms and there you are. It's all over.

More dottiness with the Djinn and handy lung-fish

IN last month's look at **Adventure Quest** I left you in the wadi having filled your bottle with oil. We won't need it yet, in fact we have quite a bit of scurrying round to do before we make use of it – but if we forget it we shall come to a frustrating stop before too long.

It's time to go mountaineering again and this time, ignoring the sheep track, we go straight up. There's no need to worry about the body hanging on the gallows or the threatening notice: The Orcs have been dealt with.

Go north into the stone tower, east into the small room and take the rope, then go out again and climb the stairs until you come to the room with the foul smell. Once inside, don't panic. Throw the ruby – which turns out to be a bomb – and the Shape will no longer be able to do you any damage.

Take the emerald eye from the alcove, but leave the bag where it is for the present – you'll be coming back this way soon. Now you need to go up to the place where the abominable snowman was chained up.

Leave the tower and go on up the mountain. When you are outside the cave, drop everything and go back down to the tower, collect the bag and take it down to the Wadi.

From here you need to go two moves west to the dry canyon and then south towards the oasis guarded by the Djinn. If you open the bag here a blast of wind will blow the Djinn away: It's a case of one windbag disposing of another.

One more move south places you right in the oasis, so have a drink and take the lamp. Now you'll be able to see what's in the cave, so scurry off back up the mountain, through the tower and up to the cave.

Enter the cave and light the lamp: You'll see a small stalagmite, yet another white dot, and you'll hear the sound of running water. It took me a fair amount of puzzling before I worked out what to do here.

First, tie the rope to the stalagmite and then *throw* all the objects one by one – the lamp last of all. Make sure you collected everything outside the cave and that you are carrying nothing before entering Down. This will put you on to a ledge which then collapses, hurling you into the water.

Don't panic, enter Up instead. If you are told you can't, it's because you are still carrying something which you should drop – the game actually allows you to be carrying four objects and drop them before trouble occurs. Once you have climbed up successfully you are on another ledge and you should move east to where you will find a model of a lung-fish.

The lung-fish is a very important object and will be needed at several points in the adventure from now on. It's vital (literally) to realise how it works, though. It changes your capacity to breathe in a particular medium the moment you pick it up.

Thus, if you pick it up while in an air-breathing environment you will at once get the message: *You can't breathe.* If you then drop it, you will *still* be unable to breathe in air until you have picked it up again. After that, if you are not going to change environments, it can be dropped again safely leaving your hands free to carry four objects.

So, take the lung-fish and go down into the water. Your next input should be up – and you'll find yourself on a beach, unable to breathe: So drop the lung-fish then take it again and your troubles will be over. You will also find that everything you threw into the water from the cave has been washed up on the beach – and there's a new item awaiting you, too, a fishing net. Its use will prove illuminating.

More next month.

Elite Tips

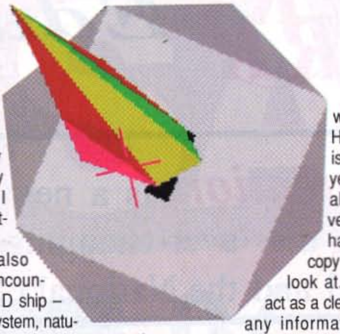
Stephen Smith offers tips on getting rich quick – and getting killed even quicker if you don't watch your step.

Find somewhere with an Anarchy system within 0.5 lightyears hyperspace jump. Stephen uses Biante and Erbieso in Galaxy 4. Here's the scam: Buy as many tons of Narcotics as you can from the non-Anarchy system – make up the load with Computers if needed. He's been able to get Narcotics for around Cr17 a ton at Biante.

Now hyperspace to the Anarchy system – in this case Erbieso – where they sell well: Around Cr99 a ton is possible. Then it's just a question of battering your way through successive waves of hostiles until you collect the profits.

If the price is too low, simply hyperspace back to the stable system and then rejoin the Anarchy system immediately to see how prices are now. The point is, you can do the switch several times on one load of fuel until you decide the price is right.

This is not a tactic for wimps and Stephen is Elite now. Stephen has troubles, however, in Witch Space. He gets thumped by Thargoids on a fairly regular basis. Does anybody have a set of tactics that works every time? I just flail around with my Military Laser until they are all gone or I have been splatted myself.



Stephen also believes he's encountered the C and D ship – in the Anarchy system, naturally. There he was, just having dealt with an attack wave, his radar clear of baddies and debris, when something invisible mugs him and it's *Game Over* before he can draw breath.

I've had a letter from Stephen Hayes asking about second processors. The second processor required is the Acorn 6502 in its various guises. My own is external, but one can be fitted internally to a Master.

Not much software was written that followed Tube protocols, but Elite certainly was. My own disc (from Superior) caters for an unexpanded BBC Micro and also has versions for B+, Master and 6502 second processors.

I have had an absolutely massive missive from Daniel Doran who covers a number of topics – and I'll deal with the first one this month.

He's bought the game UIM (expensive and infuriating according to Daniel) and having completed the first two missions now gets plastered by the police no matter what he does or where he goes. He wonders if it is a bug. I can't yet help personally – though a very kind reader has sent me his copy of the game to look at. I'm willing to act as a clearing house for any information you may have which will help Daniel. I'm still learning how to control the submarine. At the moment I keep burning up on re-entry.

James Turner has completed Mission One on his Master 128, and wonders what to do now. Press on, my son: Eventually you will be awarded Mission Two. James also asks if Mission One is rewarded in any way. I'm almost certain my bank balance was boosted by Cr.10,000.

Commander V. Rogers has had trouble with **Elite** when he runs it with his Master Turbo board operating – the lasers fire all the time. He's had the hardware checked and that seems in order, so all I can suggest is that he contacts Superior Software. They have been very helpful to readers in the past.

Problem Corner

Matthew Chatterley is stuck in the adventure game **Amnesia**. In spite of my vast stock of hints and solutions, I don't have anything on it. Matthew has four questions: Where does he dig the hole, what does he type into the computer, what does he do with the money and where does he apply the machette?

If any reader can supply answers Matthew and I would both be grateful.

James Knott is a bloodthirsty lad who wants to blast Thargoids at will, rather than relying on the random precipitation into Witch Space. Well, James, on *some* versions you can do the following: Start the Hyperspace routine, pause the game once the countdown is under way, press Control+X, resume the countdown and it's Witch Space next stop.

By the time you read this, the Archimedes version should be near launch. It's brilliant: I've now seen what is termed a prototype version. Lick your lips lads and lasses, it won't be long.

Santa
LAUNCH TRADE EQUIP GALAXY LOCAL DATA STATUS HOL
FS
AS
FU
CT
LT
AL
ELITE
SP
RL
DC
1
2
3
4
Target Found

Triple RR Education

Triple RR *Education* is a new company established to meet the ever-changing complex needs of YOUR child and the National Curriculum

Behind *Triple* RR *Education*

Pete Davidson (Project Director)

Pete has a BSc((hons) in Mathematics and Computer Science and also has certificate of education. He has been involved in education all his working life and has taught in Primary and Secondary schools and also lectured at University.

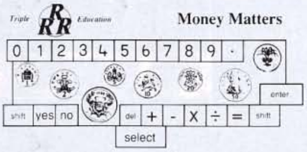
Over the past few years he has been involved in publishing magazines and software. He has been features editor of **The Micro User** and the world's first educational computer comic **Let's Compute!** He's also worked on many top educational software packages such as **Mini Office, Mini Office II,** and the award-winning **Fun School** series.

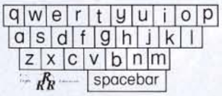
Steve Botterill (Financial Director)

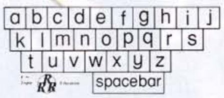
Steve is a well-known figure in the computer software industry. He helped to establish **Superior Software** as the leading games producer for the BBC and Electron from 1982 to 1988. More recently he set up **Impact Software** and now is co-director of **The Fourth Dimension** and ***Triple R Education.***

Steve intends to bring to educational software the quality of sound and graphics that modern games display but are lacking from other packages. And with all the Fourth Dimension equipment and programmers to help, *Triple R* is going to set brand new standards for educational software.

The REVOLUTIONARY *Triple* RR *Overlays*







Children find the QWERTY arrangement and the capital letters of computer keyboards confusing. They're fine for typists, but far from ideal for use with educational software. So, to give YOUR computer a purpose-designed keyboard, ***Triple R Education*** has designed a UNIQUE series of overlays. They simply attach to your normal keyboard and can be quickly fitted and removed as necessary.

Your child need no longer be forced to use a keyboard designed for adult typists. He or she can now use one specially created with education in mind. They all have lowercase letters and are supplied in both alphabetic and qwerty order. There's even one showing coins to help children get to grips with money.

These keyboard overlays are essential to help children to learn more from their computer!

AMAZING MAIL ORDER OFFER!

Buy any two of these innovative educational products and choose another FREE.

When you order, just let us know which three educational packages you want. You'll only be charged for the two most expensive.

HURRY: *This offer ends on September 30th 1991*

Triple Education

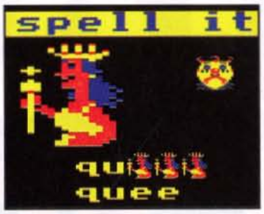
Picture Book

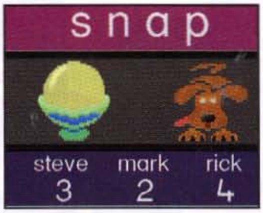
A fabulous friendly welcome to the computer world with a suite of four colourful programs. All use superb pictures and great sounds to keep children happy for hours as they learn:

Alphabet Book: An animated electronic version of a child's abc book.
Spell it: An enjoyable introduction to spelling.
Count 'em: Fun with numbers counting the pictures.
Snap: A bright and entertaining educational version of the popular game with three levels and for up to three players.

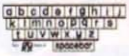
BBC/Electron tape	12.95
BBC 5¼" disc	14.95
Master Compact 3½" disc	15.95
BBC A3000/Archimedes disc	19.95

BBC

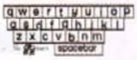




ARCHIMEDES


a b c d e f g h i j
k l m n o p q r s
t u v w x y z
spacebar

Picture Book comes complete with two revolutionary lower case keyboard overlays


q w e r t y u i o p
a s d f g h j k l
z x c v b n m
spacebar

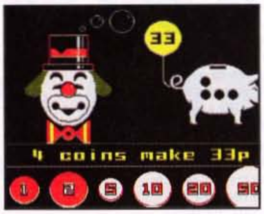
Money Matters

A superb suite of programs to teach currency facts. Based on a circus theme it's ideal for all children from tots to teens. Youngsters will love the cheerful clown graphics and the unique coin keyboard overlay. **This is the best way for children to learn all about British coins and ways of tendering sums of money.**

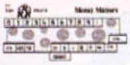
For the more advanced child higher levels are designed with specific National Curriculum attainment targets in mind.

BBC/Electron tape	12.95
BBC 5¼" disc	14.95
Master Compact 3½" disc	15.95
BBC A3000/Archimedes disc	19.95

BBC



ARCHIMEDES



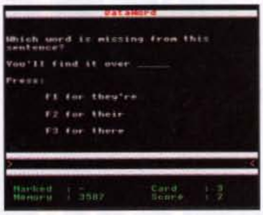
Money Matters comes complete with a keyboard overlay. Children can press pictures of coins rather than the computer keys

DataWord

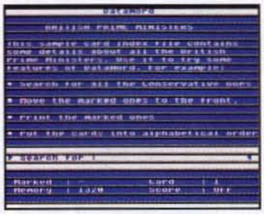
This unique program has been designed with ease of use as a priority and fulfills many of the needs for a database in the National Curriculum. It works just like a card index but the flexibility of the text editor allows you to also use DataWord as a word processor too! Another really powerful feature of Dataword is the built-in card linking system which means parents and teachers can create files of inter-connected cards. **THIS IS NOT JUST A DATABASE**, it's a word processor, quiz game, electronic programmed learning book and a fabulous introduction to the world of Information Technology.

BBC/Electron tape	12.95
BBC 5¼" disc	14.95
Master Compact 3½" disc	15.95
BBC A3000/Archimedes disc	19.95

BBC

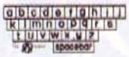


```
                 DataWord
Which word is missing from this
sentence?
You'll find it over _____
Press:
      F1 for they're
      F2 for their
      F3 for there

Marked   : -            Card   : 3
Memory   : 3587         Score  : 2
```

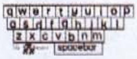


```
                 DataWord
        BRITISH PRIME MINISTERS
This sample card index file contains
some details about all the British
Prime Ministers. Use it to try some
features of DataWord. For example:
* Search for all the Conservative ones
* Move the marked ones to the front.
* Print the marked ones
* Put the cards into alphabetical order

Marked   :             Card   : 1
Memory   : 1328        Score  :
```

ARCHIMEDES


a b c d e f g h i j
k l m n o p q r s
t u v w x y z
spacebar

Data Word comes complete with two of the revolutionary lower case keyboard overlays and FIVE fascinating example files.


q w e r t y u i o p
a s d f g h j k l
z x c v b n m
spacebar

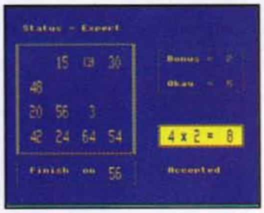
Target Maths

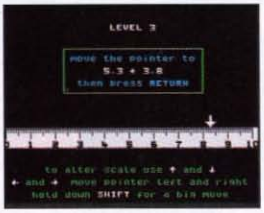
Four cleverly designed educational games that make children want to come back for more. Each has been thought out with specific National Curriculum targets in mind.

Eliminator: Learn tables and progress from Novice to Expert.
NumberFax: A unique game showing factors, odd and triangular numbers and more.
Scale Factor: Read linear scales exactly - and at higher levels improve your arithmetic skills too.
Slider: A computer version of Snakes and Ladders.

BBC/Electron tape	12.95
BBC 5¼" disc	14.95
Master Compact 3½" disc	15.95
BBC A3000/Archimedes disc	19.95

BBC





move the pointer to
5.3 + 3.8
then press RETURN

to alter scale use ↑ and ↓
← and → move pointer left and right
hold down SHIFT for a big move

ARCHIMEDES

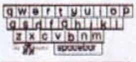
Target Maths comes complete with details of how each program meets the needs of the National Curriculum

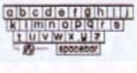
Converta-Key

Prices as above

Triple R alphabetic overlays are unique and our software is designed to work specifically with them. However we have now produced a program that lets you use the alphabetic overlay with any software that you write yourself. **It will also work with lots of currently available commercial software too!** Comes complete with a suite of introductory programs that you can use or customise to your own needs including: Hangman, Quizmaster, Anagrams, Memory Master, Find it and Speed-type.

Converta-Key comes complete with two of the revolutionary lower case keyboard overlays


q w e r t y u i o p
a s d f g h j k l
z x c v b n m
spacebar


a b c d e f g h i j
k l m n o p q r s
t u v w x y z
spacebar

Send 'em in!!!

If you have any ideas or have written any programs then please send them for evaluation.
We pay top royalties and can offer the best technical support.

SUPERFAST 1st Class FREE Delivery

LETTER

Simply send us a quick letter telling us the software you require, your name and address, and payment via cheque, postal order or ACCESS or VISA card details
Triple R Education, 1 Percy Street, Sheffield, S3 8AU, England.

All orders are despatched immediately by 1st Class post. Carriage is paid by us in the U.K.
(Overseas orders add £3 per product).

FULL DETAILS OF ALL OUR GAMES ARE AVAILABLE ON REQUEST & ARE SENT WITH ALL ORDERS.

TELEPHONE

TELEPHONE ORDERS WELCOME
(0742) 700661 / 769950
ACCESS & VISA Accepted
24 hour Service 7 Days a Week

Triple Education
1 Percy Street
Sheffield
S3 8AU
England
Tel. (0742) 700661
or 769950

DESKTOP OFFICE

THE INTEGRATED SUITE FOR ARCHIMEDES

DATABASE

WORD - PROCESSOR

SPREADSHEET

GRAPHS & CHARTS

COMMUNICATIONS

£132.78 Incl. VAT

DATABASE

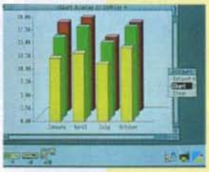
At last - a fully integrated suite of database, word - processor, spreadsheet, charts and communications for the Archimedes. The database is simple to set up with a flexible card layout enabling you to design cards to suit your data. Video style controls make it easy to browse through the records. With instant search on fields, sort routines and reports available, DTOBase gives flexibility whilst remaining simple to use.

The word - processor, DTOWord is ideal for all types of correspondence, with the ability to change text to bold or condensed, indent, centre, justify etc. DTOWord makes every document look professional. Text can be any colour and even displayed in large characters on screen making this package ideal for young children or those with poor sight.

word - processor

SPREADSHEET

DTOSheet is fast and powerful but designed for ease of use. Columns can be held for reference and cells locked to prevent accidental deletion. With colours available to highlight negatives or formulae DTOSheet gives all the features you would expect of a high class spreadsheet. Data can be exported directly into DTOChart allowing pie charts, 3D bar charts, etc to be produced in seconds. Sections of pie charts can be highlighted and the colours changed to your requirements.



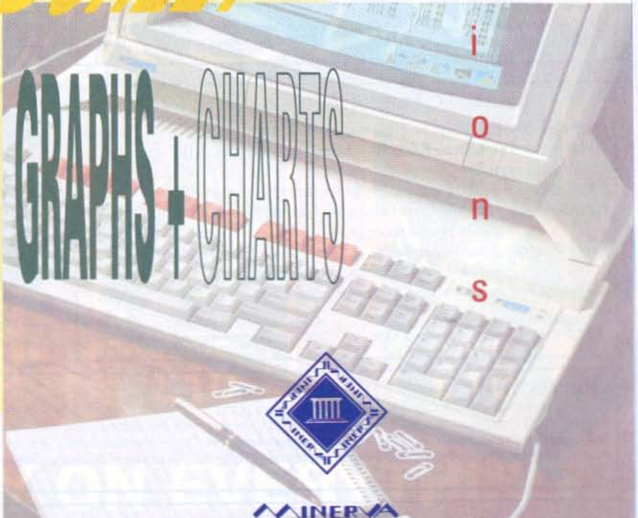
The final package in the suite is the communications program DTOComms. Multi - tasking, even on line, DTOComms supports ANSI and TV1925 emulations and is configurable for all baud rates and protocols. Text files can easily be transmitted and received.

DeskTop Office is a fully integrated, multi - tasking suite of programs for the Archimedes and A3000. Data can be transferred between the programs giving the ultimate in flexibility to produce graphs from your spreadsheet data or similar applications.

DeskTop Office is all you need for Education, Small Business or Home use.

communications

GRAPHS + CHARTS



MINERVA

Minerva House
Baring Crescent, Exeter, Devon, EX1 1TL
Tel.: 0392 437756 Fax: 0392 421762

EAS!WORD

word - processor

Easiword is simplicity in itself and ideal for everyday word-processing needs. Easiword has all the facilities of DTOWORD together with the extra facility of multiple documents.

£40.82 Incl. VAT

Update

Young Press praised

WHILE thousands of athletes from around the world were striving for honours on field and track at the recent World Student Games in Sheffield, local children were also being praised for their achievements in the less active sphere of computers.

In a scheme designed to take advantage of this unique event, pupils from 30 Sheffield schools used the latest technology to produce daily news sheets throughout the two weeks of the games.

Using portable computers, teams of intrepid young newshounds from a different school each day, stalked the arenas, swimming pool and tracks to conduct interviews with competitors, compile reports on events and talk to visitors.

They even had the scoop of an interview with Neil Kinnock when he turned up at the games and such was their professionalism that they became known as *the young Press* and were accorded the same privileges as the professionals.

Their reports were sent via modems down the line to Sheffield Education Computer Centre from where the project was masterminded and where they were downloaded into Archimedes computers using Longman Logotron's communications software ArcComm2.

Files were saved and transported toPenDown by Longman Logotron for editing by other students. The work was then exported to Acorn's Desktop Publisher where the final copy was typeset and the A3 news sheets were distributed to the various venues to give competitors, visitors and organisers a daily news service on the games.

"The atmosphere here was absolutely marvellous", said manager of the computer centre at Nether Edge, Dave Smith. "The children worked really hard not only through the two weeks but at weekends as well, backed by many of their teachers and also by staff at the centre including our advisory teachers Joan Craven, Marg Lester and Alison Tyldesley. It really made you think that life was worthwhile".

Planning started two years ago when Sheffield Education Department seconded teacher Paul Desgranges to look into the educational possibilities of the games and their accompanying cultural festival being held in Sheffield. At the same time, staff at the computer centre also started to think how schools could become involved using computers.

Initially the centre produced a pack of curriculum activities which local schools used before and throughout the games.

Following the games news service, which included both junior and secondary school pupils, a booklet is to be produced on the project with plans for an introduction written by Neil Kinnock.

Sheffield Education Computer Centre started eight years ago and is supported by Sheffield Education Authority.

Hands-on at art show

WHEN children visit most art exhibitions, they are strictly instructed to keep their hands off. The opposite is the case with Art Machine, the revolutionary art exhibition which actively encourages participation by young visitors.

Nine A3 sized Concept keyboards have been a main attraction at Art Machine where youngsters are encouraged to push knobs and clamber through sculptures as well as creating their own art through using the keyboards.

Attached to BBC A3000 computers, the Concept keyboards are used with a range of software commissioned by Topologika and specifically designed to link maths with art.

Among the first participants in Art Machine were pupils from the Isle of Sheppey's Danley Middle School. Another group of young visitors who found the Concept Keyboards particularly interesting were those from the George Orwell School's department for visually impaired children. Head of the department, David Arnold said: "The physical aspect of touching is very important to visually impaired children. Our group found the Concept Keyboards really fascinating because of the ease with which the children could create images on screen.

"The main learning difficult associated with visually impaired children is the time taken to complete a task. Reading and writing takes considerably longer for visually impaired children and leaves them physically fatigued. "With their large, colourful overlays, Concept Keyboards are much easier for those with sight difficulties to operate".

Earlier this year, Art Machine was at London's Barbican Centre. In April next year, it re-opens at Blackpool's Winter Gardens. Such has been its success that later in 1992, it will go on show in Amsterdam and at other venues in Denmark, Sweden, Belgium, Germany and Spain.

IT hot of the press

A NUMBER of new IT publications are now available from Northern Micromedia.

The MITAC (Management of Information Technology Across the Curriculum) project has launched a series of training materials and resources designed to help schools and colleges more effectively manage their use of IT.

Six titles are available. Some include simple sofware, all are activity-based and are well supported by comprehensive guides and background material.

Coach Lane Comprehensive is designed to raise awareness of IT issues in schools, encouraging management teams to look at IT in action in a fictitious secondary school. IT 1995 and The IT Toolkit build on this awareness and Making IT Happen offers a series of informative and interesting articles to help get the ball rolling.

The project's most recent resources have more definite focus. Exploring Roles and Responsibilities for IT helps clarify who should be doing what and The IT Development Framework is about working with teams to encourage and support the appropriate integration of IT into

➤

existing programmes of work.

The second set of literature has been produced by a NCET/NORIC Maths, IT and Special Needs project and is a range of materials on how IT can support mathematics learning for special needs children from nine to 13.

It covers National Curriculum attainment targets and makes extensive use of a great deal of software which is available in schools including Logo, Grass and Ergo. The materials combine practical problem solving and investigational activities with the facility of IT to provide an "alternative, stimulating and non-threatening learning environment".

Among various aspects of the maths curriculum dealt with are pattern in number, data handling, shape and symmetry, Logo and Roamer work.

The various titles can be bought individually or in packs. For further details contact Northern Micromedia, Resources Centre, Coach Lane Campus, Coach Lane, Newcastle upon Tyne, NE7 7XA. Tel: 091-270 0424.

Special Needs Open Day

IF you're quick off the mark reading this latest copy of *The Micro User* you may just be in time to attend the Special Needs Open Day to be held by Morley Electronics on September 17.

It aims to offer useful information to people involved in special needs education and to give them a chance to see at first hand some of the hardware and software now available for people with special learning needs who use Acorn computers.

A number of specialist software houses will be exhibiting their products and there will be demonstrations of the Acorn Special Access Pack by representatives from Acorn.

More details from Michael Fodden, Morley Electronics, Morley House, West Chirton, North Shields, Tyne & Wear. Tel: 091-257 6355.

32-bit technical support

CONCENTRATING on BBC A3000 and Archimedes machines, a new company Selective Computer Services has been set up to serve people in Derbyshire, Leicestershire, Nottinghamshire and Staffordshire.

Running the firm is Barry Thompson who recently took early retirement after 19 years in further education where his special emphasis was on teaching computer skills.

"I aim to provide for all the needs of the home, school and small business computer user, including technical support and servicing", said Barry. "The main aim of the business is to sell and support computers which will help build the confidence of users so that they will not feel afraid of using new technology".

Barry intends to deal in the BBC A3000 Special Access Computer, to offer technical support in schools, colleges and homes and to provide home tuition. He can be contacted on 0332 690691

Longman on the move

EDUCATIONAL software house Longman Logotron has moved. It is now at 124 Cambridge Science Park, Milton Road, Cambridge, CB4 4ZS. Tel: 0223 425558. Fax: 0223 425349.

New Risc OS titles

TWO new Risc OS educational titles have been produced for Archimedes and BBC A3000 machines by Sherston Software (0666 840433).

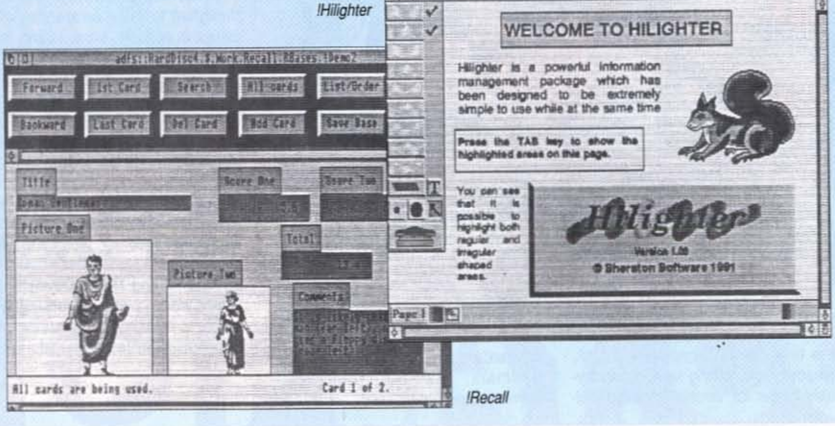
Described as a simple but powerful information handling package, !Hilighter allows children and adults to create and link pages of graphics and text together in a way that is as simple as using a highlighter pen.

"The package comes with several different Hilighter folders to illustrate its potential and has a multitude of possible uses both at school and in the home", said Sherston's Bill Bonham.

Second Sherston offering is !Recall, a new database package which has been designed to make it easy enough for children to use while retaining enough power for the majority of applications.

Special features include easy-to-design record sheets which will handle !Draw and sprite files, pictorial representation of searches, sum fields that allow the package to be used like a mini spreadsheeet and full graphing facilities.

As *The Micro User* went to press, prices are not be fixed but were likely to be under the £50 mark.



Hilighter is a powerful information management package which has been designed to be extremely simple to use while at the same time

Press the TAB key to show the highlighted areas on this page.

You can see that it is possible to highlight both regular and irregular shaped areas.

All cards are being used.

!Hilighter

!Recall

Latest packs from ESM

ALREADY making plans for its appearance at next year's BETT show in January, educational software publisher ESM has announced a number of new products.

Most likely to become available first are Archimedes versions of ESM's popular Best Four Packs. In response to demands from teachers, the Best Four Language and Best Four Maths packs should be out at the end of September in Archimedes format.

Not surprisingly, both packs contain four programs and are good value for money. ESM will also launch a new Archimedes pack called Best Four Adventure including four of the popular Anita Straker adventure programs – The Lost Frog, Puff, Martello Tower and Merlin's Castle.

Aiming for the Christmas trade is the first of a series of support packs which have been developed to expand the possibilities of ESM's popular wordprocessor, desktop and interactive publishing package Desktop Folio.

Due out soon, it's the Christmas Theme Pack and contains a wealth of design ideas for Christmas cards, posters, pantomime programmes, festive menus and advent calendars. Included are many ready-to-use pictures and page designs as well as a Practical Ideas booklet. Other theme packs will follow.

Aimed at a January release is an Archimedes version of the popular BBC geography pack World Map Study which includes excellent graphics, greater versatility and more information than its predecessor.

A map-based database for storing and manipulating a range of geographical and environmental details, it will present data visually in a number of ways including bar charts, scattergraphs or coloured maps. All data can be updated allowing World Map Study to become an ongoing source of information for any project.

Rounding off ESM's latest announcements and also due for release in January is Bookstore, an Archimedes database program which encourages children to record and retrieve book reviews they have written.

With Bookstore, teachers can keep a record of what each child is reading and young readers have an easily accessible source of book titles.

For further details on new products and on pricing, ESM can be contacted on 0223 65445.

fun school 3

Learning is now even more fun!

Fun School 3 is everything you – and your children – ever wanted from educational software: **SIX** challenging programs in each pack which fulfil the exacting requirements of the National Curriculum. Plus: Stunning graphics; exciting sounds; carefully structured levels so your children can have fun and learn at their own pace. And all are designed by the winning team which created **Fun School 2**, the biggest-selling educational package ever!

On sale at top dealers nationwide. Selected formats available at larger branches of WH Smith and Boots.

fun school 3
for the under 5s

Under 5s

How many flowers ? 4

Count up to nine to help teddy get the honey

B b
a b c d e f g h i j k l m
n o p q r s t u v w x y z
level 3

Pair the large letters at the alphabet fair

fun school 3
7 year olds

5 to 7s

Tell the time and watch the clock come alive!

Guide the frog from log to log to solve the sums

fun school 3
for over 7s

Over 7s

Sentences
desk
Clue
OK

My desc is at the front of the class. I sit next to Emma.

Correct spelling, grammar and punctuation mistakes

Follow the directions to find the buried treasure

• Atari ST • Amiga • PC • Amstrad PCW
£24.99
• Spectrum • C64 • Amstrad CPC
£12.99 (tape) £16.99 (disc)

DATABASE EDUCATIONAL SOFTWARE

Archimedes version NOW AVAILABLE

Format	Under 5s		5 to 7s		Over 7s	
	Tape	Disc	Tape	Disc	Tape	Disc
Atari ST		9490		9491		9492
Amiga		9921		9922		9923
PC 5.25"		5891		5892		5893
PC 3.5"		5894		5895		5896
Amstrad PCW		5211		5212		5213
Spectrum	9084	9085	9086	9087	9088	9089
Commodore 64	9076	9077	9078	9079	9080	9081
Amstrad CPC	6189	6190	6191	6192	6193	6194

Please supply Fun School 3 for the code number(s) circled
☐ Cheque payable to Database Software
☐ Please debit my Access/Visa card no.
Expiry date:
Signed
Add £2 per program for Europe & Eire (£5 Overseas).
Name
Address
Postcode

Send to: Database Direct, FREEPOST, Ellesmere Port, South Wirral L65 3EB. Order hotline: 051-357 2961

Around the IT world in 80 frames

Marshal Anderson examines a new hypermedia application to aid the harassed IT teacher

Product: Map-It
Price: £32.00
Supplier: FM Associates, 40 Hylton Road, Newton Hall, Durham DH1 5LS.
Tel: 091-384 1874
Requirements: A3000 and Archimedes series

LET'S talk about hypermedia, the system of organising information so that you can discover – and sometimes create – linkages between different bits of the information.

The best version of this type of package for the Archimedes so far is Genesis – presenting you with pages containing text, graphics – and potentially sound and video. Genesis uses buttons to take you to other pages.

Sometimes they are little blocks that advise of *More*, or take users to a menu. Sometimes they are hidden behind the content so that clicking on a picture of a bird reveals a page about it.

What is so powerful and exciting about this kind of system is that it allows the exploration of a body of knowledge in a free-form and creative way.

!MapIT is a Genesis II application that provides the National Curriculum IT document, its Attainment Targets and programs of study plus a certain amount of curricular analysis in the hypermedia form.

You'll need at least 2Mb of ram, but you don't need a copy of Genesis as the !Browser application is provided. First the browser is loaded, followed – with considerably more disc swapping than the instructions suggest – the !MapIT file.

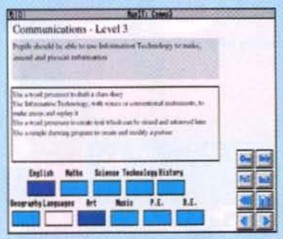
Clicking on Introduction takes you through some basic and important pages on the thinking behind IT in education. The idea of cross-curricular competence is introduced and it's this area with which the package is concerned.

In this form IT is divided into five strands: Communications, information handling, modelling, measurement and control plus applications and effects. The following pages give a clear view of IT in schools and will help sort out any confusion.

It breaks the problem down into its constituent parts and ends up by warning that MapIT is not a package for the IT coordinator or even the IT department, but something to guide a whole school policy.

I must say that the inclusion of this text as part of the actual package was a bit belt and braces. The text cannot be explored and the only relevant options on each page are: Next page, previous page and main menu.

It soon becomes clear that Genesis takes a while to load the fonts for each page – it gets really dull waiting for it. I would have preferred to see this printed out in a booklet. Hard disc users will not experience the same delays though.



Linking ATs across the curriculum

The main menu offers each of the 11 areas the National Curriculum will eventually cover. So clicking on Geography and then waiting for half a minute will result in a very useful grid.

There's one for each subject covering each AT level crossed with each of the five stands identified above. The grid is shaded so you can see that while they would expect a high IT content in level 4/communications you wouldn't anticipate any level 3/modelling.

This is great because it immediately sends users to those parts of the curriculum where they can use IT and avoids unnecessary searching. It should be remembered though, that these shadings represent the authors' opinion and not explicit statements from the National Curriculum.

The key button always gives a guide to the meanings of whatever graphical information is available and the help button indicates what all the other buttons do.

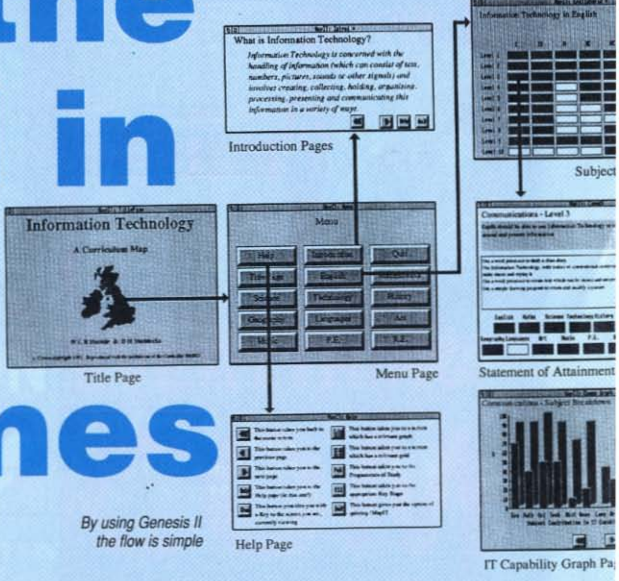
The graph button at this point – after you swap discs – shows the percentage contribution Geography can make to IT capability. This is a rather strange idea. Quite where such specific figures come from isn't clear, but again it can be a helpful guide.

From the grid page we can move sideways to another subject or choose to examine one point on the grid. Picking out communication in level four, I expected to find those Geography ATs that related to IT communications. Actually geography had been left behind and here is level 4 for AT 5 in the technology document, the communications bit.

There are suggestions for specific activities, like restructuring a story by moving and formatting text. Whether these activities come from any National Curriculum documents is not clear, but considering that this was a recommended area for geography, there's no specifically geographical task on the screen.

We can now move on to the Programs of Study, choosing from the four key stages. The text is from the Technology document and does the relevant cross-referencing for you. It's also possible to look at grids and graphs which summarise the stands by subject, the opposite to the above.

There's no doubt that there is a genuine attempt here to be cross-curricular. There are problems, though. It



What is Information Technology?

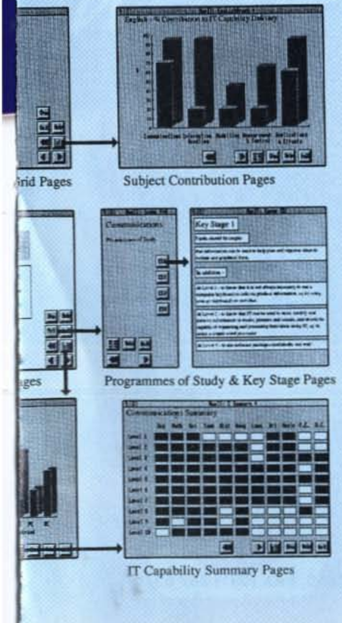
Information Technology is concerned with the handling of information (which can consist of text, numbers, pictures, sounds or other signals) and involves creating, collecting, holding, organising, processing, presenting and communicating this information in a variety of ways.

By using Genesis II the flow is simple is maybe too much to expect the resolution of the software to give you actual ATs and activities in individual subject areas, but you are left with a fair old search though the documents to find actual activities. That said, it's better than starting from scratch!

Some of the links between pages are not what you'd expect and it's not always easy to get back to a specific page. The software is very slow and a little more information on how to use the !Browser would have been useful. Some menu options aren't explained, and there is a difference between clicking a button with select or adjust. However, my copy of !MapIT is not quite finished, and these quirks should be cleared up in the final version

Summing up

This is an interesting package offering a lot to schools – especially secondary – who are in the process of sorting out their IT policy. It will help sort out some starting points for discussion and development, directing coordinators to the relevant parts of the National Curriculum. It is still only a glimpse, though, of how hypermedia could help us through this maze..


rid Pages
Subject Contribution Pages
ges
Programmes of Study & Key Stage Pages
IT Capability Summary Pages

Discovering the hedgerows

Product: Hedgerows
Price: £19.67
Supplier: MEP, 8-10 Lower James Street, London W1R 3PL.
Tel: 071-287 5060
Requirements: BBC B and Master

Donning his pith helmet, Marshal Anderson takes his class on safari

I DO like a software package with a lot in it and if quantity is your only criterion then Hedgerows will certainly impress. Running on a BBC Micro, the package aims to provide the IT view of a hedgerow study at a range of age and ability levels.

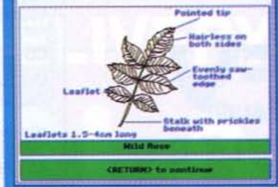
The first thing you come across is the identification screen. The idea is that you bring samples of leaves and twigs back to the classroom and the program steps through a series of questions from the shape and arrangement of the leaves to general queries about the plant.

The leaf shapes are illustrated onscreen so there is less confusion about what can be difficult choices to make. However, the database only contains a couple of dozen plants and the variety in any hedgerow runs into hundreds – but at least it is a start.

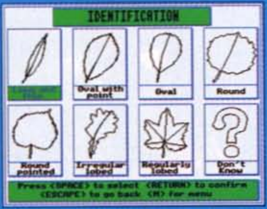
The program reports if it can't match your description. Once the software has an answer it will display a line drawing of the relevant leaf with various notes.

The other major section of the package is Field Work, which takes analysis of a hedgerow to a much more sophisticated level. To use this you'll need to go through the program before setting off into the field to ascertain what sort of information you'll be looking for.

The Hedge Survey has you setting up a section of hedge from 1 to 99 metres long. The package saves the hedge's location and grid reference, its orientation and altitude plus an identification code.

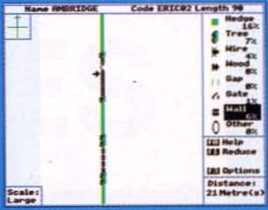


Putting names to your discoveries



Press <SPACE> to select <RETURN> to confirm <ESCAPE> to go back <M> for menu

Stepping through the identification



Name AMBRIDGE Code ERIC02 Length 98

Hedge 16%
Tree 7%
Wire 4%
Wood 0%
Gap 0%
Wall 6%
Other 0%

Distance: 21 Metre(s)

Scale: Large

Specifying your particular hedge

Once this is all in a dotted line appears representing the hedge on to which the features surveyed can be placed. Available are things like hedge, gap, tree and fence, each represented graphically on the map.

The cursor keys are used to build up a plan of the hedge with a continuing display of the percentage each type of feature represents. At any point you can enlarge the map or get a printout. The hedge can be divided into sample points that take in its height and width to provide statistics used later. Once the dimensions are entered you can add the species found at that point. Again you are limited to the species offered or "other", but plants seem to have been carefully chosen as the main constituent parts of any hedge.

A further option is to date the hedge, using information on the types of plants there. You are warned that this is only an estimation, yet the age can be reported as 573 years – very strange. If these figures were rounded to the nearest 50 years and given the caveat "about"the message would be better.

The other main option available is the Detailed Study, which looks at the hedge from the point of view of its various microclimates. Here information about the wind speed, air, ground and soil temperatures as well as soil moisture at different points can be entered .

After entering all the required data it can be represented as a series of simple graphs and compared with other hedges. As there can be a huge amount of data here the printout option is very useful.

All files saved in the Hedge Survey are compatible with the Key database. Two files are created, the basic hedge survey data and the detailed data. This really does give the power to study in great depth just what is going on.

Given all these facilities,the package presents a wealth of possibilities for class and field work. With packages like this though, there is always a danger that the software may end up dictating the form of the survey.

However, this is a versatile and useful package. My only real complaint is that the error trapping is poor to non-existent, so you'll have to be careful swapping discs and so on. It's also worth noting that the Hedge Survey needs a double disc drive to be usable.

The documentation is clear and concise with suggestions for activities. Further help is available in the form of a Hedgerows Activity Pack with a teacher's guide, worksheets and the usual bits and pieces.

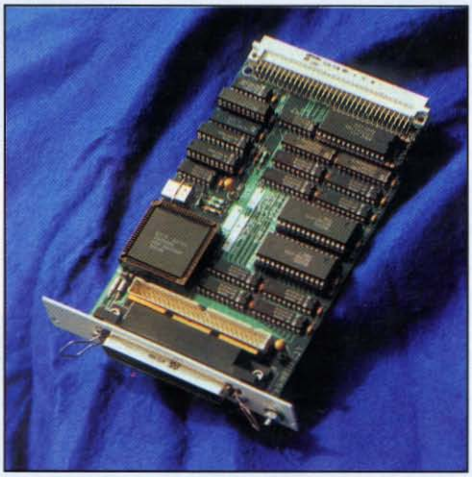
There are also programs to help users identify trees and wild flowers, all very reasonably priced.

Summing up

This straightforward package is simple to use and well documented. It'll help expand the work you do on any field trip, from the junior age range using it to identify plants up to the upper secondary years using sophisticated statistical techniques.

QUALITY - SERVICE - SUPPORT - SINCE 1985

SCSI Hard Disc Drives, Tape Streamers & CD ROM...



The fastest hard disc interface for the Archimedes and A3000

Systems from as little as £219 (Archimedes) & £289 (A3000)

Free ArcTools disc utility software with every hard disc system

Dealer and Educational prices available

...call (091) 257 6355 and ask for Sales!

MORLEY
E·L·E·C·T·R·O·N·I·C·S · L·T·D

One year ago, Morley Electronics decided to design and build a new SCSI interface card. The design objective was quite simple....to build the best. We believe that by manufacturing the fastest SCSI interface, utilising a quality four layer board and also making it completely ANSI Level 2 compliant, we have achieved our aim.

Two 16 bit interfaces are available. Our standard interface is extremely fast but for those requiring even faster data transfer, our cached card offers sustained transfer speeds up to 3790 KB/s (compared with a maximum sustained transfer speed of 2121 KB/s for our standard card).

The A3000 expansion card comes in a colour coordinated steel case which fixes to the rear of the A3000. The hard disc mechanism is enclosed in a separate steel case (also colour coordinated) with switch mode power supply and fan to ensure that the unit remains cool.

The 400 series expansion card occupies a single expansion socket and can support both internally and externally mounted devices. It is fully compatible and will coexist with any existing ST506 drive.

Each expansion card will support up to seven SCSI devices including hard discs, tape streamers, solid state discs, CD ROM players etc. (providing the appropriate software to drive them is installed).

The SCSI system is designed to comply fully with the ANSI X3.131-1986 standard and to give full Acorn RISC OS compatibility.

Full technical information (including data transfer speeds) are available on request.

INTERFACES*

A3000 SCSI Interface	**£169**
400 SCSI Interface	**£149**

SCSI DISK DRIVES*

Including SCSI interface, cable & leads. A3000 drives also include drive case and switch mode power supply.

A3000 20MB	**£289**
A3000 40MB	**£379**
A3000 100MB	**£579**
400 Internal 20MB	**£219**
400 Internal 40MB	**£299**
400 Internal 100MB	**£499**
Larger Drives	**POA**

400 External drives are the same price as A3000 drives.

TAPE STREAMER BACKUP*

150MB (with SCSI interface)	**£799**
150MB (w/o SCSI interface)	**£699**

CD ROM*

Coming Soon.
Phone for availability.

***Cached Interface Add**	**£50**

All prices exclude VAT & carriage.

MORLEY HOUSE, WEST CHIRTON, NORTH SHIELDS, TYNE & WEAR, NE29 7TY. TEL (091) 257 6355. FAX (091) 257 6373

Unlimited creativity?

Discarding his easel, Frank Jukes reviews a promising new paint package

Product: Imagine
Price: £39.95
Supplier: Topologika, PO Box 39, Stilton, Peterborough PE7 3RL.
Tel: 0733 244682
Requirements: BBC A3000 and Archimedes range

IMAGINE is described, on the front of its bright, distinctive packaging, as an easy-to-use design package for the Archimedes. When it arrived for review the rest of the family smiled – they've seen my art work. If I could produce something worth looking at then anyone could.

Well I did, and Imagine is so good that I believe that it could well become the default art package in schools.

For pupils of both junior and secondary school age its ease of use, range of features and price put other similar packages into the shade.

The sensible system of copyright protection is also encouraging. There are no dongles or key discs to be carried around or lost but the program does announce its serial number and the name of its registered owner in a pop up window when the program is first started.

It is something which potential thieves cannot ignore but which is not too inconvenient for the genuine owner.

Topologika's attitude towards backups is similarly helpful. They say that they expect users to make backup copies for daily use and that a purchasing institution such as a school may make any number of copies for use on a single site of that institution. In other words, they grant an automatic site licence. Well done Topologika. Other companies please note.

It's obvious from the very start that author Peter Killworth has put a great deal of thought into the design and implementation of Imagine's many features.

It does not conform entirely to Acorn's design guidelines, but neither does Impression, and I think everyone knows how good that program is. Imagine has a strongly intuitive feel and, as I quickly discovered, it can be used by anyone with experience of typical Archimedes software without looking at the user guide.

However, deciding that I really should stop doodling and that the user guide deserved at least a glance, I was treated to a pleasant surprise. Unlike many guides, this one was easy to read, friendly in style and, above all, informative. Everything you could wish to know is in there in only 28 A5 pages.

Possible pitfalls are described and ways of avoiding them are suggested. Even reasons for why the program does things in the way it does are given.

The program runs in Mode 15 and can use either 256 or 16 colours to paint across the entire screen area. An unusual feature is the ability to work on a second screen completely independently of the first. It may also be used as a temporary storage or trial area.

For these reasons the program does not multi-task, as there is simply not enough memory on a standard 1Mb machine. The non multi-tasking nature of newly released programs is the subject of some debate, but I don't think that it is an issue here. The gains far outweigh any losses and only when all Archimedes are supplied with 2Mb as standard could there be reason for a re-think.

Creating screens is achieved through a series of menus. The main one is displayed automatically when the program is loaded and from this a series of sub-menus may be accessed by clicking on the desired option.

This is not the standard Risc OS way to access sub-menus and it does involve a lot more clicking. I'm not happy with this for good reasons. Young children, for example, can find sliding the pointer off arrows on menus quite tricky.

On the other hand I like the menus' intelligent nature. They pop up away from the area which is being worked on and remember your previous choice. The next time a menu is selected your previous choice appears already highlighted and ready to be selected again.

When you have finished with a menu the mouse pointer is returned to where you were previously working.

Choices on the menus can be amended to suit the user. Some features may be disabled and others altered and help can be tailored to meet individual needs. Providing assistance in concise and informative boxes, you can set this to appear every time a menu is selected or where and when you deem it important.

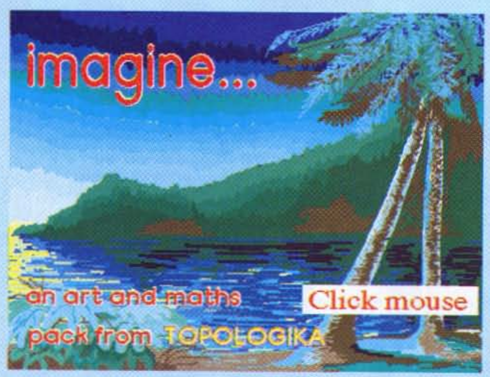
Painting on the screen is achieved using brushes, a spray can, a jug or a magic pen. The brushes are chosen from a variety of shapes and sizes with you deciding the spray can's size and intensity.

The jug option is more usually known as a flood fill and the magic pen produces some very interesting effects – click select anywhere on the screen and again a short distance away and the colours lying along the line between the two points form a pattern which can be painted onto the screen to produce a ribbon-like effect.

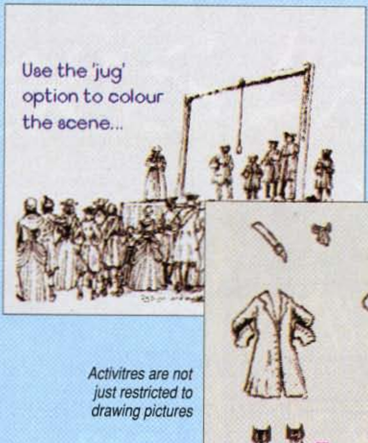
In a similar way a small area of the screen may be used instead of one of the colours. Known as a texture, this pattern can be painted on to the screen with one of the standard brushes to produce an interesting background. As with most of the other options, if you don't like the effect a click of the adjust button will restore the screen to its previous state. In a similar way the whole screen can be automatically covered in a series of rectangular patterns to produce an effect similar to brickwork – you can't reverse this option though.

All of these direct painting methods

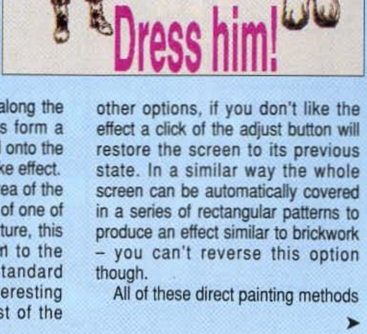
➤



Imagine has a good user interface



There are some nice examples supplied with the package



Activitres are not just restricted to drawing pictures may be enhanced by a whole range of additional facilities, all of which are available from menus. Some of the extras are simple and what you might well expect and others are more powerful.

Regular shapes such as rectangles, circles and even spirals are easily drawn, while you can place text anywhere and at virtually any size – as long as you have system or outline fonts.

In the more powerful options the transform option allows a rectangular area of the screen to be selected and then transformed or distorted. An area of the screen is selected using the mouse and then painted back in another position after being flipped, rotated or distorted to fit into a quadrilateral of your choosing.

To make all of these processes easier the program reduces the mouse's speed. Unfortunately it's not restored to its previous speed when the program is exited.

Imagine is not just an art and design tool. It has features which extend its use into mathematics. Tessellation and painting in a variety of symmetries – left/right, up/down or even 8-fold rotational – are both possible and easy to use, producing some stunning effects.

Not finished yet, the program even provides an elementary Turtle Logo. A dart is driven round the screen using angle and distance instructions typed in at the keyboard in response to on-screen prompts. As the dart moves around the screen it draws a line which may be solid, dotted, dashed or brush shaped. The usual FD 20 or LT 90 type of command used in full blown Logo packages is not used and so this part of the package should really be viewed as an extra rather than a serious Logo implementation.

It is nevertheless a useful addition, and could be useful in integrating logo into the design curriculum.

The ability to save and later re-load recently created work is, of course, crucial and like the rest of the program it's quick, easy and menu driven.

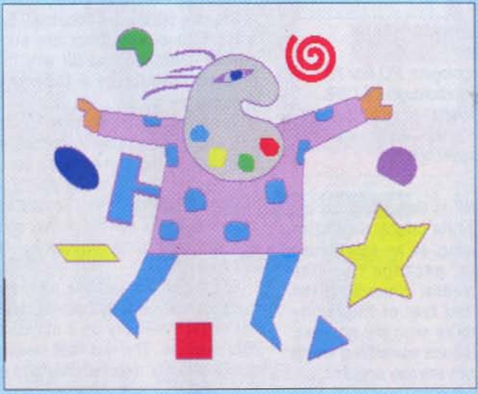
Screens may be saved as standard screen sprites or in a compressed form onto discs known as gallery discs. These are ordinary discs with a Gallery directory where the screens are saved.

If the program finds that the directory doesn't exist it will create it automatically after first checking with you. This seems an unnecessary complication, but it does ensure tidiness and enables another program called Gallery – supplied with Imagine – to replay a collection of pictures as a slide show.

Displaying children's work is vitally important in motivating them, recording their achievements and in encouraging development.

Gallery's slide show offers an interesting and different way of doing this. With the computer sitting in a corner of the classroom or in the school's joint display area it can quietly cycle through the class's accumulated work.

Imagine can, of course, produce a traditional record of work by printing the screens. It does this using the appropriate printer driver which it reminds you to load if it isn't present when the program is first loaded.


Imagine makes the most of your talents

The printing process is not without problems though. The first involves the second drawing screen. Memory limitations mean that this must be discarded or saved before printing ,and this can be mildly annoying.

The second problem may involve the loss of unsaved work. If the printing option is chosen and the printer is not switched on the user is prompted to turn it on.

This on-screen warning could be missed or ignored by someone in a hurry and once the program tries to start printing there is no simple way to stop it. It would be useful if Escape, for example, aborted the printing process. The ability to stop printing would also be useful when a mistake is spotted only when the printer has started.

However, one nice feature is the ability to select and print only that part of the screen you want.

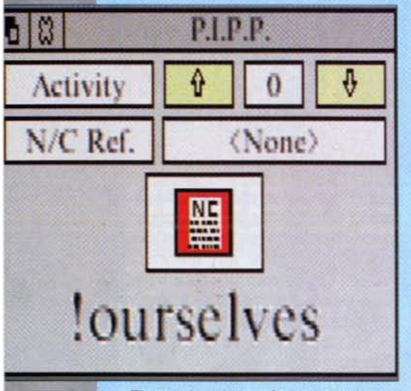
Summing up

Imagine is very impressive, powerful yet quick and easy to learn. I cannot think of any missing features, and the guide is helpful and encouraging. The licence conditions and protection system are friendly and sensible and the price is right.

If your school is in need of a painting package then go ahead and buy this one.

Making plans

John Clemence reviews an updated version of a program to aid to teachers at the lesson planning stage



The opening window of a loaded project

Product: Professional Integrated Project Planner
Price: £42.00 (Archimedes – Primary Schools), £43.00 (BBC B and Master – Primary Schools), £52.00 (PIPP 2 Archimedes –Primary and Secondary), £15.00 (Archimedes –Homes)
Supplier: CIS, Unit 2a, 436 Essex Road, London N1 3QP.
Tel: 071-226 3340
Requirements: BBC B and Master and A3000 and Archimedes series

P.I.P.P. is designed to help teachers plan their topic or project work while taking into account the requirements of the National Curriculum and works by allowing the teacher to have access through the computer to the statements of attainment.

These are combined with notes describing the associated activities which the children will carry out. The activities are devised and written by the teacher and the program is designed to help in the organisation of the ideas and for searching the National Curriculum statements for relevant references.

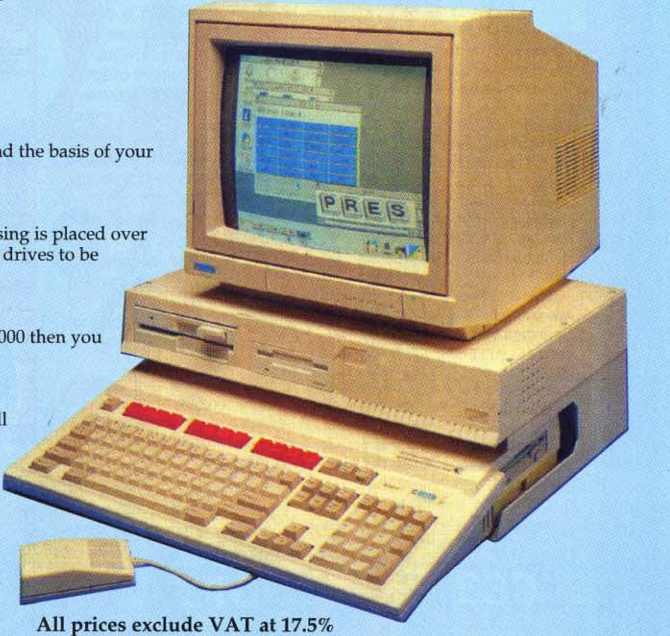
This information is stored on disc and as a project is planned you can either print the activities alone or complete with the attainment targets covered.

Since I first reviewed the program a little over a year ago it has undergone considerable changes and is now fully Risc OS multi-tasking.

There is a version covering Key

PRES

AT THE FOREFRONT OF A3000 UPGRADES



Monitor Stand **£24.95**
Probably the best monitor stand available for the A3000 and the basis of your modular system.

System Housing **£69.50**
When you are ready to expand the A3000 this system housing is placed over the monitor plinth, allowing two floppy drives and 2 hard drives to be added.

Expansion Card Case **£14.95**
If you're adding an expansion card (or podule) to your A3000 then you will need this expandable case to connect and protect it.

Disc Buffer **£48.95**
To add extra floppies to your system housing then you will require this disc buffer. It incorporates software control that will allow you to use virtually any disc format. See below for our additional drive prices.

65Host 1770 DFS and DFS Filer **£19.95**
A Rom upgrade for the Disc buffer that provides a DFS drive icon on the icon bar and 1770 DFS in 65Host, the BBC Emulator.

Extra Drives for the system housing	
3.5" floppy drive	£75.00
5.25" floppy drive	£99.95
20Mb Hard Disc drive (ST506)	£299.00
40Mb Hard Disc drive (ST506)	£399.00

All prices exclude VAT at 17.5%

BBC ACORN USER SHOW '91

Available will be podule expansion for your A3000 that will allow **two external podules to be working simultaneously!** True podule expansion capabilities are here at last for the A3000.

The **Space Kit** will allow 400 series owners to add an extra hard drive, internally! **Available Now!**

The **Missing Link** allows fast data transfer between two Archimedes or A3000, see the review in BBC Acorn User August 1991. **Available Now!**

The **Floppy Lock** when added will allow you to 'turn off' your floppy drive with a key. **Available Now!**

See us on stand 71 or call for more details.

Education and dealer enquiries welcome.

The New Microtrader Business System

A dedicated accounts package for the serious business user. Exploit the power of the Archimedes with the new multitasking RISC OS Accounts Modules for sales ledger, purchase ledger, nominal ledger and stop control. Phone for details and free demo disk.

Eight-Bit Users

We still supply our extensive range of Electron, BBC Model B and Master 128 products. If you want to upgrade your eight-bit machine then call for details.

First Time Buyers

Looking for an Archimedes or A3000 system? Why not give us a call? We offer fast friendly service, and expert advice on what you need before you buy.

Full service and maintenance facility now available for Acorn computers.

Access VISA

PRES Ltd, Box 319, Lightwater, Surrey, GU18 5PW.
Tel: 0276 72046 • Fax: 0276 51427

➤

Stages 1 and 2 and a fuller, more expensive one containing the complete National Curriculum which is designed more for secondary schools.

According to which version you buy, the resources disc holds part of or the entire National Curriculum published to date including the History and Geography statements but not the revised Maths or Science documents.

Except for History, where the example statements have also been included, this version of the program does not include the programs of study or the non-statutory guidance. However, these should be available in due course.

C.I.S. will also supply replacement files for the National Curriculum as final versions of the documents become available. A recording package is also planned which will enable you use the matched statements for your activities and attribute them to groups of children who have carried out the project.

The program relies on !Edit from the application discs in order to enter and edit text, so you may have to learn two new packages in order to gain the maximum benefit from using P.I.P.P! On the whole I liked the idea of incorporating the use of a program that was already available to all users of the machine – it makes good economic sense.

P.I.P.P. was supplied on two discs with a draft copy of the manual. One disc contained the essential resources while the other held an example file.

The program can be run in a 1Mb machine but you would then probably need to place projects you were building on the same disc as the Resources. I used a 2Mb A3000 with an additional disc drive with no difficulties, although I noted that both disc drives were quite active.

Care has to be taken with the order in which loading operations are carried out as P.I.P.P. has a subdirectory containing the font it uses. So it is important to load P.I.P.P. before !Edit otherwise you'll be given misleading error messages.
Using two drives I found the best solution was to have a copy of !Edit – and the System Directory – on the same disc as the Resources.

Once loaded, the application appears at the bottom of the screen with a caption saying Inactive. A project may be loaded by double clicking on it in a directory window. Ready made projects are available. The example project file is called Ourselves and I've also received a further project disc called Homes.

Both consist of a number of activities covering a range of attainment targets. Because of the open ended way in which the program is constructed it's quite possible to develop these ideas further in any way that you think suitable.

However, I could find no way with the current version of P.I.P.P. of being able to get an overview of what statements had been covered by a project. It is easy to list the statements for each activity but not the complete set for an entire project.

It would also seem that working out the statements of attainment for two or more projects would be impossible. It was also annoying not to be able to find any quick way of finding out how many activities had been planned. A lesser niggle was that I found the screen rather cluttered from time to time.

As well as providing the luxury of having the whole National Curriculum at your finger tips, P.I.P.P. can carry out quite powerful searches of the entire text. I used the package to prepare a project on Light and Colour. Within 65 seconds it had searched the whole of the National Curriculum for references to the word colour.

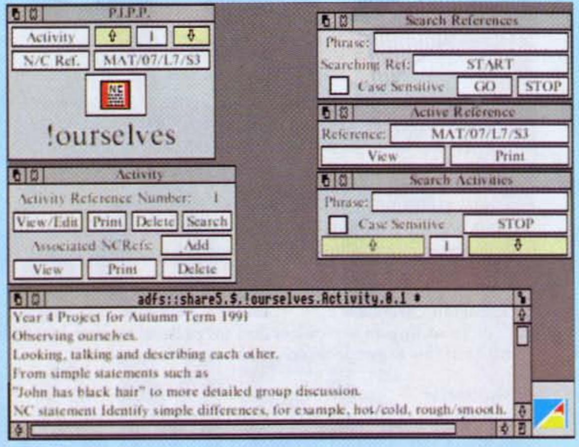
All of the National Curriculum references found in a search can be printed so that as you plan your activities it is very easy to find the references and attach them to each activity. The draft manual contained the beginnings of a tutorial.

Printing can be carried out in two stages – either the activity or the statements of attainment. However, there is nothing to stop you placing the National Curriculum statements into your project plans using the mark and copy facilities built into !Edit and then printing the whole thing in one go. The printed quality is quite basic but fast and is really all that is required.

Summing up

I began to find my way around P.I.P.P. quite quickly and despite some small reservations found it to be useful in planning one of my projects for next term.

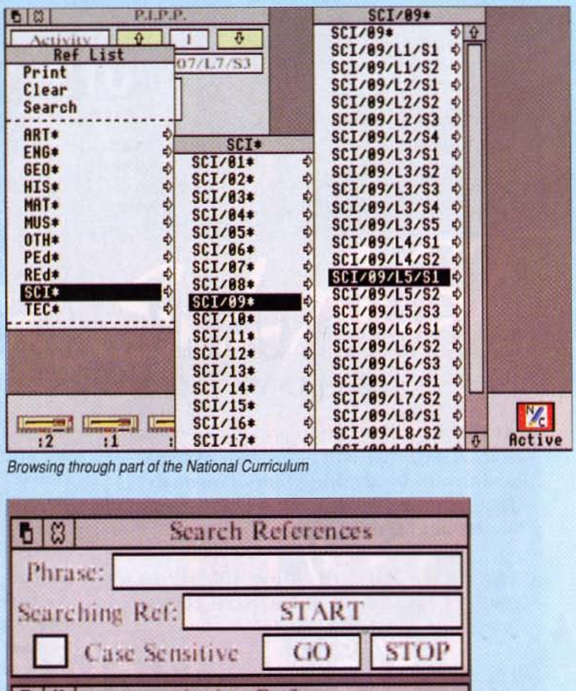
It invites a cross curricular approach to planning but provides no facility to draw a flow chart or conceptual map of a project showing all the links to different areas of the curriculum.


P.I.P.P.
Activity
⇧
1
⇩
N/C Ref.
MAT/07/L7/S3
!ourselves
Activity
Activity Reference Number: 1
View/Edit
Print
Delete
Search
Associated NCRefs:
Add
View
Print
Delete
Search References
Phrase:
Searching Ref:
START
Case Sensitive
GO
STOP
Active Reference
Reference:
MAT/07/L7/S3
View
Print
Search Activities
Phrase:
Case Sensitive
STOP
⇧
1
⇩

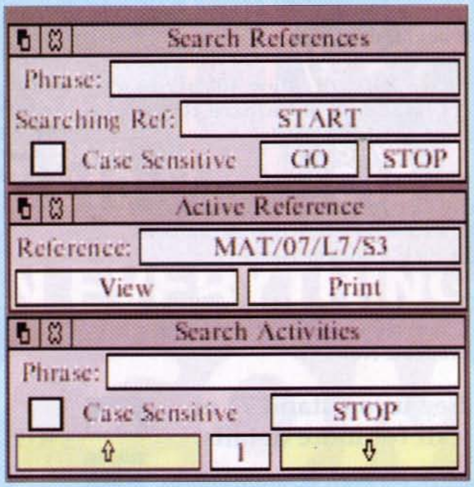
adfs::share5.$.!ourselves.Activity.8.1 *

Year 4 Project for Autumn Term 1991
Observing ourselves.
Looking, talking and describing each other.
From simple statements such as
"John has black hair" to more detailed group discussion.
NC statement Identify simple differences, for example, hot/cold, rough/smooth.

A typical planning screen

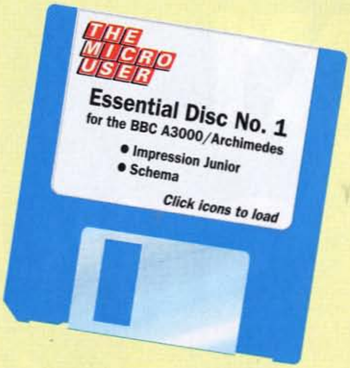

P.I.P.P.
Activity
1
Ref List
Print
Clear
Search
ART*
ENG*
GEO*
HIS*
MAT*
MUS*
OTH*
PEd*
REd*
SCI*
TEC*
SCI*
SCI/01*
SCI/02*
SCI/03*
SCI/04*
SCI/05*
SCI/06*
SCI/07*
SCI/08*
SCI/09*
SCI/10*
SCI/11*
SCI/12*
SCI/13*
SCI/14*
SCI/15*
SCI/16*
SCI/17*
SCI/09*
SCI/09*
SCI/09/L1/S1
SCI/09/L1/S2
SCI/09/L2/S1
SCI/09/L2/S2
SCI/09/L2/S3
SCI/09/L2/S4
SCI/09/L3/S1
SCI/09/L3/S2
SCI/09/L3/S3
SCI/09/L3/S4
SCI/09/L3/S5
SCI/09/L4/S1
SCI/09/L4/S2
SCI/09/L5/S1
SCI/09/L5/S2
SCI/09/L5/S3
SCI/09/L6/S1
SCI/09/L6/S2
SCI/09/L6/S3
SCI/09/L7/S1
SCI/09/L7/S2
SCI/09/L8/S1
SCI/09/L8/S2
:2
:1
Active

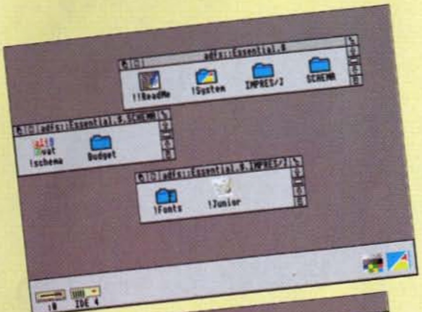
Browsing through part of the National Curriculum

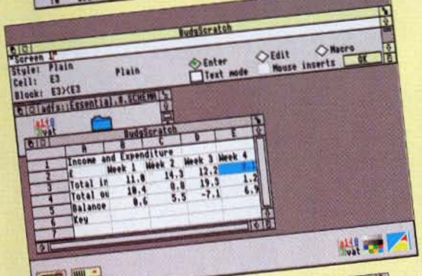

Search References
Phrase:
Searching Ref:
START
Case Sensitive
GO
STOP
Active Reference
Reference:
MAT/07/L7/S3
View
Print
Search Activities
Phrase:
Case Sensitive
STOP
⇧
1
⇩

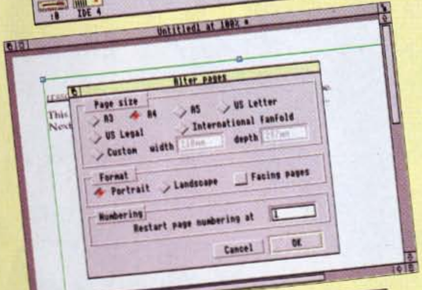
Searching is straightforward

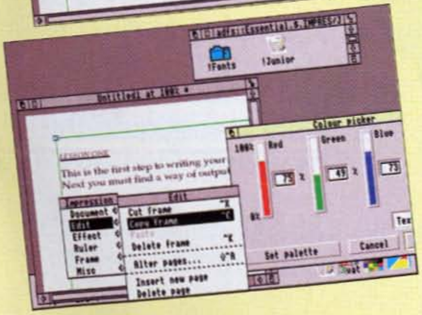
FREE for 1,500 A3000/Archimedes readers – the ESSENTIAL disc!


THE MICRO USER
Essential Disc No. 1
for the BBC A3000/Archimedes
● Impression Junior
● Schema
Click icons to load


!ReadMe
!System
IMPRES/J
SCHEMA
!schema
Budget
!Fonts
!Junior


BudgScratch
Enter
Edit
Macro
Text mode
Mouse inserts
OK
Income and Expenditure
Total in
Total ou
Balance
Key


Alter pages
Page size
A3
A4
A5
US Letter
US Legal
International fanfold
Custom
width
depth
Format
Portrait
Landscape
Facing pages
Numbering
Restart page numbering at
Cancel
OK


!Fonts
!Junior
Colour picker
Red
Green
Blue
Impression
Document
Edit
Effect
Ruler
Frame
Misc
Cut frame
Copy frame
Paste
Delete frame
Alter pages...
Insert new page
Delete page
Set palette
Cancel

To complement our new Essential Archimedes section (see Page 80) we are offering a free disc to the first 1,500 readers who complete and return the form at the bottom of this page.

The Essential Archimedes series will build up over the coming months into a comprehensive source of ideas and tutorials covering all aspects of the BBC A3000 and Archimedes range. The first four sections cover desktop publishing, spreadsheets, databases and graphics by object.

To help you try your hand at DTP and spreadsheets we are offering two exclusive versions of Impression Junior from Computer Concepts and Schema from Clares Micro Supplies.

An excellent introduction to the world of DTP, **Impression Junior** is the entry-level program of the Impression range.

It is simpler and less powerful than its big brother, Impression 2, but still combines all the best features of word processing and desktop publishing in one easy-to-use program. As it is frame-based you can put text and graphics anywhere you want on a page and its flexibility puts no restraints on your creativity.

Our version is identical to the program being sold for £89.95 but without the ability to save or print. Also included is the outline font manager and a special font.

Schema is a powerful program which incorporates all the essential spreadsheet features: Trigonometric functions, matrix operations, statistical operations and many more. It also has its own macro programming language which allows it to be expanded even further.

You can have a spreadsheet as large as 30,000 by 30,000 cells, with up to 50 spreadsheets loaded at once. Being truly multi-tasking you can work with different cells in other sheets at the same time, allowing you three dimensional linking. And once you have your information calculated you can present your findings in chart form.

Schema normally costs £135. The version on the free disc is complete in every way – apart from the Save and Print functions.

- Future subjects to be covered in *The Essential Archimedes:* Graphics by Pixel, Wordprocessing, Programming in Basic, Music and Risc OS Programming.

Aleph One Limited
Still waiting?
+44 223 811679
SAVE
£10
VE

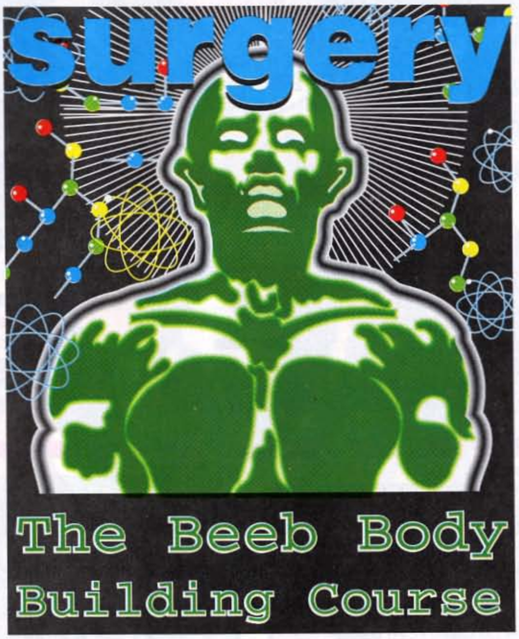
Once
your
dealer has
fitted the
Upgrade,
you'll find your
Archimedes runs
more quickly and
smoothly. Next time
you're waiting for your
ARM2 to catch up with
you, why not investigate the
Aleph One ARM3 Upgrade?

Available from all good dealers
or direct from ourselves.

essor.

ld Courthouse Bottisham Cambs. CB5 9BA
811 679 - Fax: (0223) 812 713

DIY brain surgery



The Beeb Body Building Course

Mike Cook introduces an amusing and educational application for the I^{2}C bus

OVER the last few months we've been looking at using our I^{2}C interface for a number of serious data gathering applications. Well, you can't be serious all of the time so this month we will look at a very silly game. Those with Model Bs and Masters need not be left out either because you can play this through your User Port.

Being the proud father of two small children, I have found that the more gruesome a game, the better it's liked. Therefore, I present for your delectation the Computerised Brain Surgeon, a game of pure skill.

All games need a rationale so here's the scenario for this one. You are about to operate on a brain that contains seven tumours. These must be removed using a pair of tweezers.

However, you must not touch the sides of the incisions otherwise you cause permanent brain damage and the patient dies. The patient is only under a local anaesthetic, so if you have an Archimedes and this month's subscription disc, some pretty strange noises will accompany the removal of each tumour.

That's the idea of the game, so how do we make it? Well, it's all done with stout cardboard and aluminium tape. You need two pieces of card separated by small spacers made from a stack of small pieces of card.

Each incision is a hole cut in the top piece. The edge of the hole is wrapped around with aluminium tape and all the holes are electrically connected. These are then connected to bit 7 of the User Port or the I^{2}C interface. To keep things neat, these can be connected to the underside of the top board so the wiring does not show.

At the bottom of each hole, that is on the second card, you have two strips of aluminium tape close to each other. One side is connected to earth and the other side to a computer input.

Astride the tape sits the tumour or paper clip which normally shorts the computer input to earth. However, when the clip is removed the computer input will assume a logic one state. You will need seven of these sites, each connected to a different computer input bit.

Finally to remove the paper clips we need a pair of metal tweezers, with an earth wire attached. This is best done by drilling a small hole in the side and attaching a wire to a nut and bolt through the hole. The foil tape runs can be terminated using a nut bolt and washer to allow you to connect a wire.

Alternatively you can run the tape to the edge of the board and use a crocodile clip. The general arrangement is shown in the diagrams.

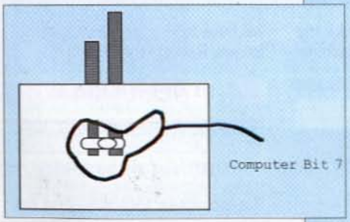
The foil tape can be made to connect if overlapped and pressed down firmly with the back of your nail. Remember that glue will act as an insulator, but I have found that there is sufficient gap to make it form a contact.

Another option is to bolt a washer over the join of two pieces. If you want two lines of tape to pass over each other without making contact, you can lay a piece of sellotape over the crossing point before you lay down the second piece.

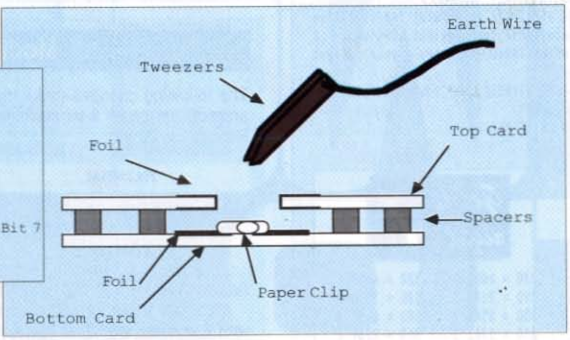
It would be wise to test the connections with a continuity meter if you are unsure of the connections. A pack of foil tape and 20 6BA nuts, bolts and washers are available as Body Build Pack No 75.

Finally, the game needs to be connected up to the computer. This is simple if you have the I^{2}C interface as it uses screw connectors. If you have an 8 bit machine or a conventional User Port Podule then you could do with the Body Build User Port Transition board, Pack 1.

Having built up the game, and perhaps done some suitable surface drawing on the top card, you're ready for the software. A very basic game is shown in the listing, and this is suitable for a BBC A3000 or Archimedes with my I^{2}C interface fitted. It can be modified for a Model B or Master – see the box below.



Electronic surgery: incision around a tumour



Side view of part of the game

How it works

The program first looks at the inputs until all the paper clips are in place, at which point all the inputs except bit 7 will be at zero. Bit 7 will be at a one as that is the one connected to the edge of the holes.

Then there is a delay for two seconds and they are checked again. This is because there might be a little contact bounce when you first put the clips down. This is all done in lines 100 to 210.

Next the computer's input is monitored and for each input that goes to a logic one, your score is incremented, lines 230 to 310. The variable *T%* keeps track of what pieces have been removed – this prevents

➤

cheating by continually removing and replacing the same piece.

If you want to add a sound for each piece removed, add it to the end of line 270. This is monitored until all the pieces are removed or the side of a hole is touched.

The final state of the inputs will determine if you have been successful and the appropriate message will be displayed. Then the program loops back to the beginning and holds until all the pieces are replaced.

There is a better version on the subscription disc which has digitised sound samples that accompany the removal of each piece. Since it is a brain that you are operating on, the noises are a little whacky as random neuron circuits are fired. These include a cymbal, a duck, a gasp and a howl. The death of a patient is accompanied by a Tarzan-like yell and if you are successful you get an enthusiastic round of applause. This isn't listed because typing in digitised sounds is a little tedious to say the least.

If you want to change the sounds on the subscription disc simply copy new ones into the !Surgeon folder. Then lines 610 and 620 should be changed to reflect the name of the new sound file. Note that the number after the sound name is the speed at which the sound should be played. And there you have it. A very gruesome game just to show that we are not always serious here in the Body Building Department. Next month, something completely different.

BEEB BODY BUILDING PACK ORDER FORM

Body Build Pack No 75

☐	20 6BA washers, nuts & bolts + Foil Tape	£5.00

Body Build Pack No 74

I²C Digital and analogue interface board

☐	Kit including printed circuit board	£21.00
☐	Ready assembled and tested	£25.00

Body Build Pack No 1

☐	Transition Board kit	£9.98
☐	Transition Board assembled	£11.00
☐	Assembled cable for transition board	£7.50

Name ______________________

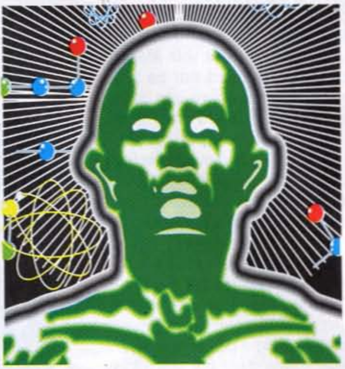
Address ______________________

____

____

______________________ **Postcode** __________

All prices include VAT and P&P
Educational establishment orders accepted.



Make cheques payable to Musbury Consultants and send to:

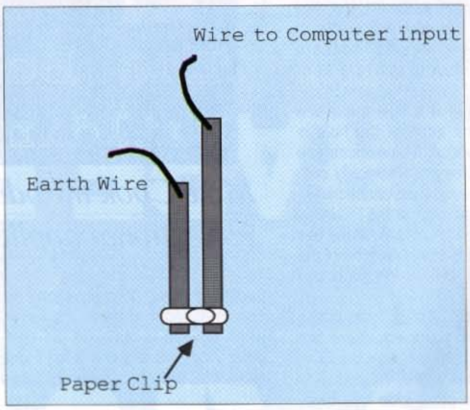
8 Fairhill, Helmshore, Rossendale,
Lancs. BB4 4JX.

Foreign orders add £3.00 if paying by Eurocheque
(for bank clearing charges).

```
   10 REM >IIC.BRAIN
   20 DIM PBK% 3
   30 ?PBK%=&FF
   40 SYS "IIC_Control",&70,PBK%,1
   50 MODE 1
   60 PRINT"BRAIN SURGEON"
   70 PRINT" By Mike Cook"
   80 PRINT"Using the IIC interface card
"
   90 PRINT TAB(0,14)"Score"
  100 REPEAT:REPEAT
  110 PRINT TAB(0,23)"Put in place all t
he pieces of Brain"
  120   REPEAT
  130   SYS "IIC_Control",&71,PBK%,1
  140   UNTIL ?PBK%=&80
  150   PRINT TAB(0,23)"Now begin to rem
ove the Brain Tumours"
  160   PRINTTAB(0,17);SPC(39)
  170   PRINTTAB(0,19);SPC(39)
  180  TIME=0
  190  REPEAT UNTIL TIME > 200
  200  SYS "IIC_Control",&71,PBK%,1
  210 UNTIL ?PBK%=&80
  220 SCORE=0:T%=0
  230 REPEAT
  240 SYS "IIC_Control",&71,PBK%,1
  250 A%=?PBK%:V%=1
  260 FOR B%=0 TO 6
  270 IF (A% AND V%)<>0 AND (T% AND V%)=
0 THEN T%=T% OR V%:SCORE+=1
  280 V%=V%*2
  290 NEXT
  300 PRINT TAB(0,14);"Score ",SCORE
  310 UNTIL (A% AND &80)=0 OR (T%=&7F)
  320 TM%=TIME
  330 IF T%=&7F THEN PRINT TAB(0,17)"Con
gratulations! Your patient survived. " E
LSE:PRINT TAB(0,17)"Sorry - your patient
 died"
  340 PRINTTAB(0,19);"You took ";TM%/100
;" Seconds"
  350 UNTIL FALSE
```

Get it right ✓

```
 10 =    0 0 | 100 = 5D46 F | 190 = CEE9 E
 20 = FE1E E | 110 = 562F 5 | 200 = 9D27 E
 30 = 360D 6 | 120 = BFBA A | 210 = 23BF A
 40 = DAF4 C | 130 = 9D27 E | 220 = C208 1
 50 = 7054 4 | 140 = 23BF C | 230 = BFBA 3
 60 = 5AAB C | 150 = 9301 6 | 240 = 9D27 1 | 280 = D087 B | 320 = 4649 F
 70 = 9036 5 | 160 = 9E7B 7 | 250 = E5AB 3 | 290 = 2C83 3 | 330 = 394B E
 80 =  1CB 4 | 170 =   6A D | 260 = 8A75 0 | 300 = 8546 7 | 340 = E455 6
 90 = AE5F 4 | 180 = 173E B | 270 = D81E 2 | 310 = 5362 3 | 350 = 226C C
```



One of the tumour sites

Modifications

The following changes make the program run on an 8-bit machine. Replace line 20 with:

```
PBK%=&FE60
```

and replace line 30 with:

```
?&FE62=0
```

Remove lines 40, 130, 200 and 240.

If you are using an Archimedes with a conventional User Port you will have to change the program as follows. Replace line 30 with:

```
SYS "OS_Byte"151,&60,0
```

Delete line 40. Replace line 80 with:

```
PRINT"Using the User Port"
```

Replace lines 130, 200, and 240 with:

```
SYS "OS_Byte"150,&60 TO ,,?PBK%
```

PROBLEM

Your technical questions answered by MIKE COOK

Pass the port...

I HAVE recently sold my old Master Compact and obtained a new Master 128. My Morley Teletext adapter plugged into the joystick port on the Master Compact. I want to rewire this to plug into the user port on my Master 128. – **Andrew Brigg, West Yorks.**

● *The Compact, unlike the BBC B and Master, does not have an analogue input, so the joystick port is in fact the user port. Therefore you cannot connect the unit up to the Master's joystick port which is an analogue input.*

You will need to connect the teletext adaptor to the user port. I spoke to Morley Electronics who said they would be happy to do this for you if you send your unit back.

...any port

I HAVE a BBC B for and I am building a speech synthesiser which is to connect to the user port on my micro.

Unfortunately I do not know the user port's address. I have looked through the User and Advanced User guides but have not been able to find the information I need. Can you help me? – **Jonathan Whale, Cambridge.**

● *The address of the user port is &FE60. This is, in fact, given on page 437 of the User Guide, but in a somewhat cryptic form. Before you can use it you must tell it which pins are to be used as inputs and which as outputs.*

You do this by writing to the Data Direction register at address &FE62. Each bit containing a one in this location will make the corresponding bit in the user port an output. A zero bit will make it an input.

You can read and write to these locations using the indirection operator ?. The user port is really the B side of a VIA that is addressed between &FE60 and &FE6F. For further information on what it contains see the Advanced User Guide.

Steering the Arc

WHEN I had a trusty Model B I built a control device which consisted of a steering wheel and a slider. The two controls were connected to potentiometers.

This device plugged into the analogue port on the micro and was useful for playing games like Revs where the keyboard was inadequate and an analogue joystick did not feel right. It worked well and increased my lap time on Revs considerably.

I have now bought an Archimedes and would like to use a similar device. This time it will have to plug into the mouse port. I have seen your body building pack which converts a BBC Micro joystick to mouse connections. Would this work in a realistic manner?

I want the steering of the car to accurately follow the position of the wheel, and suspect that this method will not provide adequate control. Could I use the innards of a mouse directly as input devices? – **Tim Morley, Bolton.**

● *You are quite right. The joystick-to-mouse converter is not what you want. A mouse is basically two digital shaft encoders mounted in contact with a ball.*

Electronically they are the same as the shaft encoder which I used in the pedometer article in September '87.

Optical shaft encoders tend to be expensive at about £50 each, and look just like potentiometers.

However there is a much cheaper contact type available at about £7.00 from Maplins. Being a contact type, it will require some de-bounce circuitry of the type shown in my article.

Rom filing system confusion

I HAVE an Issue 7 machine which I particularly need to use with the RFS. ICs 98 and 99 are already installed but there is no holder for the rom cartridge.

Nor can I find any information as to the type of holder required or the way in which it is connected. It would appear from inspection of the circuit diagram that only 10 connections are available for a 28 pin rom.

Can you give any information please? – **L. G. Barlow, West Midlands.**

● *I think you are confusing two things here. The speech synthesiser chips IC98 and 99 do incorporate a sort of Rom Filing System (RFS), but this is a serial system designed to add extension vocabulary chips to the system, as I showed in the March '85 edition of* The Micro User. *Only a few of the lines in the chip are used, hence the small connector.*

When it was produced it was Acorn's hope that it might be used to transfer programs as well. However, this needed a custom chip and it proved too expensive for anyone to bother with.

However the real RFS uses the normal sideways rom chips. With this you blow files into an eprom and access them like a small slow disc drive. The files need a bit of header code and this is described in the Advanced User Guide, in fact the format is very like the Cassette Filing System.

*The Watford Eprom programmer software has a utility to assemble several files into an Eprom automatically. To access them you need to type in *ROM then you can catalogue and load in the files in the normal way. You cannot, of course, save them.*

Living in a box

I WAS interested in the question about RF interference in a recent Problem Solved. I have encountered this problem when using the BBC Micro in conjunction with my amateur radio activities.

I was surprised that it should occur with broadcast reception where the "wanted" signals are at a much higher level. Perhaps the first step should be to check that there is not a major fault in the receiver.

Most of the interference usually comes, not from the computer itself, but from the monitor and its connecting lead. It is often particularly marked if a colour monitor is used. The most effective step in curing this problem is to put everything inside a metal box, but this need not render the keyboard unusable.

The answer, which I have found completely effective, is to coat the inside of the case with a nickel-based screening aerosol which should be available from any good supplier of electronic components.

In my case spraying the inside of the monitor case was sufficient, but having bought the aerosol you might as well spray the inside of the computer at the same time.

ALL the works MUST be removed before spraying! Also it is essential that the coating itself is then earthed between the computer, the monitor and if possible the receiver.–**L.G.Barlow, West Midlands.**

● *Thank you for the information. I knew about the screening aerosol, but have never had good reports of it before. As it is so expensive I was loath to recommend it. However, it seems to have served you well.*

SOLVED

HELP

DON'T DECIDE ON A NEW HARD DISC UNTIL YOU HAVE READ

"HOW TO CHOOSE A HARD DISC FOR YOUR ARCHIMEDES WITHOUT MAKING ANY SERIOUS ERRORS OF JUDGEMENT AND ENSURING OPTIMUM VALUE FOR MONEY"

If such a document existed life would be easier, but, as we haven't written it yet, we suggest that you read the following *IMPORTANT* information.

THINK ABOUT THE FUTURE

The right tool for the job

The average Archimedes user can probably make do with about 45Mb of hard disc storage. CD ROM hasn't really taken off yet on the Archimedes, and read/write optical storage is still far too expensive for everyday use. Tape backup systems, while useful, are considered a bit of a luxury when you can back up to a pile of floppy discs.

When the Model B came onto the scene people were making the same kind of decisions about cassette decks. How things change! However, there is one big difference between then and now. Now, it doesn't cost a fortune to 'future–proof' your expansion options.

Connection to other devices is easy

DON'T LOCK OUT YOUR EXPANSION OPTIONS

With Oak Solutions' 16 bit SCSI systems, you can add a hard disc to your computer from only £299, and yet when prices fall, you can add a Magneto–Optical drive, you can add CD ROM drives, you can add Cassette, Cartridge and DAT Streamers, you can add Flatbed Scanners, you can add Hard Discs of up to 2 Gigabytes capacity.

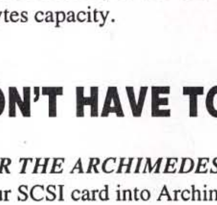
WHY GO FOR A SLOW SYSTEM WHEN YOU DON'T HAVE TO?

Our 16 bit SCSI card is *THE FASTEST HARD DISC INTERFACE AVAILABLE FOR THE ARCHIMEDES.* A bold claim, but true. The fastest hard disc we have yet found can transfer data through our SCSI card into Archimedes memory at 2.1Mbytes per second ***sustained***– that's faster than RAM on many systems.

ZERO DEFECT QUALITY CONTROL

Remember, all our SCSI products are manufactured and tested to the exacting standards imposed by our 'Zero Defect' quality control regime. We don't cut costs by missing out important components like fans, and we don't ignore the future!

Worra Winnie Range Internal Drives for 300/400 series									
20Mb	299.00	45Mb	399.00	80Mb	495.00	100Mb	599.00	200Mb	875.00
Worra Winnie Range External Drives for 300/400 series and A3000									
20Mb	344.00	45Mb	445.00	80Mb	545.00	100Mb	649.00	200Mb	925.00
High Speed Range Internal Drives for 300/400 series									
50Mb	425.00	100Mb	625.00	200Mb	975.00				
High Speed Range External Drives for 300/400 series and A3000									
50Mb	549.00	100Mb	749.00	200Mb	1095.00				
Elite Range External Drives for 300/400 series and A3000									
50Mb	750.00	100Mb	950.00	200Mb	1300.00	300Mb	1850.00	680Mb	2500.00


Built by craftsmen

Please specify type of computer when ordering.
Add £10 to cover P&P. Prices exclude VAT

Telephone for Education Prices

VISA

Oak Solutions Cross Park House Low Green Rawdon Leeds LS19 6HA Tel: 0532 502615 Fax: 0532 506868

OAK SOLUTIONS

PUBLIC DOMAIN

Of music, bugs and adventures...

Taking the bull by the horns, Teri Paul enters the PD arena anew

REVISION seems to be the name of the game this month, what with new versions popping up all over the place. Not to mention the examination revision quiz-type questions from the Welsh Boys.

Just in time for mock exams you can test yourself on Atomic Theory, Electronic Arrangement or Atomic Numbers using your Beeb – I was quite pleased with just how much I remembered from my O levels.

If trigonometry or equilateral triangles are more of a bugbear then they can help, too. However, if you are more confident they have just the thing – a CV compiler.

Moving on and up is James Coates who runs Procrastinet PD and The PD Magazine. He's now left Ludlow College and changed the name to Different Ideas. At the same time he's also acting as caretaker for John Harston's library, JGHPD. If you feel that your order has been ignored it is possible that it has gone astray so do contact them at their new address at the end of the column.

Version 4 of Sound Tracker landed on my desk recently plus some nice utilities for the more music conscious out there.

You'll have probably seen VU bars before, but how about a spectroscope and an echo? Echo II is a digital delay line which operates in four-voice mode and controls voices 5 to 8 of any SoundTrack you want. The sliding controls allow you to alter the delay time, feedback, volume and modulation speed.

Spectre + is another Warner Hepping production. It gives a spectrum estimation in a window while a tune is playing. From left to right you can see the amplitude of 64 frequency bands with the frequency of each band increasing linearly.

The latest version I've seen in 1.06 which goes some way to stopping the leaking between amplitude values – not surprising considering the size of the analysis.

Cotswold PD have a good selection of BBC tunes too, while Cream PD have a useful service where you select which tune/track you want rather than having to take pot luck with a sounds disc – nice idea.

A later version of Translator 6.44, plus a little utility called Modes, turned up recently but I believe version 6.4 is now shareware while a later version 6.6 includes windows created with Interface. Watch this space for further details.

I've heard from a couple of you who have been having problems with Oak SCSI drives and ArcFS. Not to worry I've been assured that this will be all sorted out and a new version of ArcFS will be on the November subscription disc.

One of the most common programs I come across in the PD world must be adventures. Usually written using Quill or ALPS, they are generally worth a hour or so's play at the very least. Therefore, it was with some interest that I booted up the Adventure Generator.

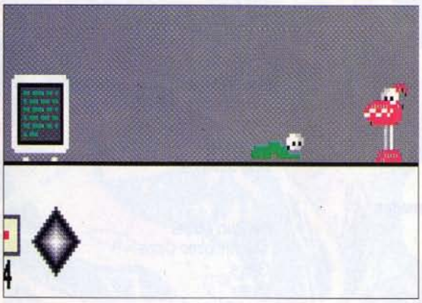
Unique, as it works on both the BBC and Archimedes it comes with a sample called the Talisman of Ryke. Perhaps not the best adventure in the world, but as an example of what you can do with a little imagination it is excellent.

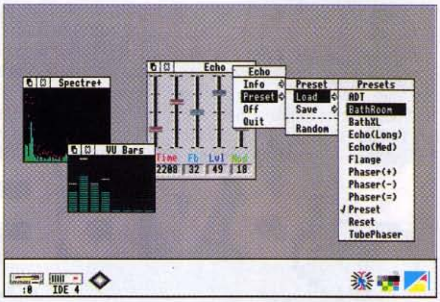
There is only one problem – it's shareware and not PD. But never fear, you can get the software, manual and demo game as well as program notes for £5 or just the software for £1 on Archimedes disc, 75p on BBC B disc, from: T Blunt, Inglenook, Kiln Lane, Binfield, Henley, Oxon RG9 4EH. Don't forget to say which version you need.

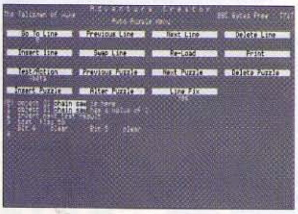
Game for a laugh

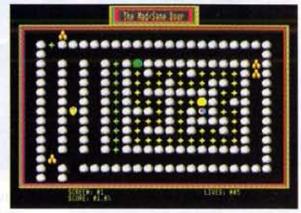
It was nice to see Soft Rock Software releasing cut-down versions of Escape from Exeria and Guardians of the Labyrinth in to the public domain. The former is a Hac Manesque Archimedes offering and although the first screen is impossible you can jump to the other nine levels at will. If you are hooked you can buy the full version from Soft Rock. Guardians is

➤


Bugs have never been such fun


Spectre+
VU Bars
Echo
Time Fb Lvl Mod
2288 32 49 18
Echo
Info
Preset
Off
Quit
Preset
Load
Save
Random
Presets
ADT
BathRoom
BathXL
Echo(Long)
Echo(Med)
Flange
Phaser(+)
Phaser(-)
Phaser(=)
Preset
Reset
TubePhaser
:0
IDE 4
You can say that again


Adventure Creator
Auto Puzzle Menu
Go To Line
Previous Line
Next Line
Delete Line
Insert line
Swap Line
Re-Load
Print
Test Action
Previous Puzzle
Next Puzzle
Delete Puzzle
Insert Puzzle
Alter Puzzle
Line Fix
Create your own adventures


Escape if you can

➤

not so potentially gripping and the graphics are not tip top, but if you have been pining away for a superior-style arcade adventure this could go some way to easing the loss.

Still on the game front, a couple of unusual offerings arrived courtesy of JD Public Domain in Holland. Both are for the BBC. Exiz is basically space invaders but with nice looking graphics and jingles to raise it above the norm. Kitchen, by Kai Sui Ng, is not nearly as pretty but is unusual.

Your food has all migrated to the kitchen ceiling – no, I don't think that it is a strange Dutch custom – and you have to catch the eggs, sausages and chips with a frying pan and toss them on to the cooker. Easy enough until more than one item of food decides to fall...

While on the subject of ceilings and games, a new desktop silly bumped into my icon bar during the month. Introducing himself as DeskBug, he shares an uncanny resemblance to BugHunter from Minerva.

He trots around your screen while a random bug appears quite unconcerned when you click the mouse. Otherwise you use the desktop in the usual way.

Better still is the little man who comes when you call an end to proceedings. You may need to boot up the floating point emulator before it'll run, though. After receiving a plea for a PD database for the Archimedes I found in my post two such programs for the BBC.

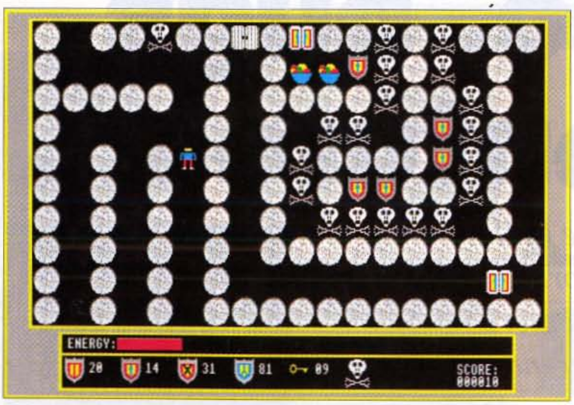
Welsh Boys PD have a simple address program which is useful for simple contact files, whereas Chris Pinnock's Einstein 1.2 has rather more to offer. More complex, it uses virtual memory, so you are able to store more away by just using a floppy disc.

Matthew White has set himself the mamouth task of creating a complete and continually updated database of all public domain software. If you are a PD author drop him a line including the following details about your programs: title, author, computer, latest version number, description – max 30 characters – and where people can obtain your program.

The monthly disc

You'll find most of the Archimedes programs mentioned here on the subscription disc. All have been virus checked. To squeeze on as much as possible we have archived the programs.

If you are unsure how to create a ram disc and unarchive the files, open the !ReadMe file on the disc and follow the step-by-step instructions.



Find your way through the labyrinth to fame and fortune

PD Libraries

Do remember always to send an SAE when you write to any of the PD libraries – they can keep their costs down only if you help, too.

Abyss Software - Archimedes
35 Grantley Crescent
Kingswinford
Valley Fields
West Midlands
DY6 9EH

Arch PD - Archimedes
109 Ferry Road
Hullbridge
Hockley
Essex
SS5 6EL

BBC PD - BBC
18 Carlton Close
Blackrod
Bolton
BL6 5DL

RE Clark PD Library - Archimedes
Westbourne House
34 Bradley Street
Wooton-under-Edge
GL12 7AR

Cotswold PD - BBC
Maycombe
Field Road
Whiteshill
Stroud
Gloucestershire
GL6 6AG

Cream PD - Archimedes
38 Baunton
Cirencester
Gloscester
GL7 7BB

Different Ideas PD - BBC
Eyton House
Eyton
Leominster
Herts
HR6 0AG

Digital Illusions - Archimedes
20 College Road
Wembley
Middlesex
HA9 8RL

Digital Phenomena - Archimedes
104 Manners Road
Southsea
Hants
PO4 0BG

Equinox PD - Archimedes
27 Station Road
Earls Barton
Northampton
NN6 0NT

JD Public Domain - BBC
7 Klembergerweg
7214 BK Epse
Holland

Mad Rabbit PD - BBC
22 Oakwood Grove
Horbury
Near Wakefield
West Yorkshire
WF4 5JE

MHPD - Archimedes
3 Rodmell Close
Bromley
Cross
Bolton
BL7 9DT

Ozone Friendly - Archimedes
180 Cumnor Hill
Oxford
OX2 9PJ

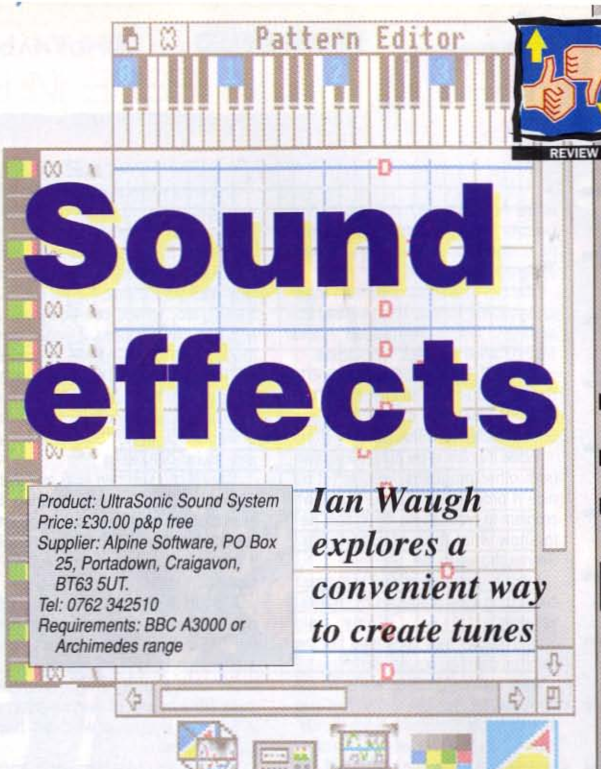
Robert Pike
4 Mayfield Road
Girton
Cambridge
CB3 0PH

Re-Run - BBC
1 Northholme Close
Grays
Essex
RM16 2NX

Soft Rock Software - Archimedes
124 Marissal Road
Henbury
Bristol
BS10 7NP

Matthew White - PD Database
The Pines
7 Peasehome
Hessle
North Humberside
HU13 0HY

The Wizard - BBC
Ryburn
Thorpe Lane
Cawood
Selby
North Yorkshire
YO8 0SQ



Sound effects

Ian Waugh explores a convenient way to create tunes

Product: UltraSonic Sound System
Price: £30.00 p&p free
Supplier: Alpine Software, PO Box 25, Portadown, Craigavon, BT63 5UT.
Tel: 0762 342510
Requirements: BBC A3000 or Archimedes range

THE Archimedes has, of late, become abundantly blessed with sample-related products and UltraSonic (review version 1.0) is a sample playback program designed to produce music for games and demos.

The music files it produces are compatible with the Creator Arcade Games Designer reviewed in the July issue.

The package contains two discs. One holds the editor and sample handling programs, the other contains 150 samples grouped into five directories – Basses, Instrument, Looped, Percussive and Strange. The discs aren't copy-protected – 10 out of 10 here – and the manual suggests you make a backup or copy them to your hard disc.

To play a piece of music you double-click on the !SoundExt icon to load the play module. You can then load and play a piece of UltraSonic music by double clicking on it.

The play module doesn't appear on the icon bar and there is no easy way of stopping the the music. There are seven demo pieces including Axel-F and the Theme from Alf.

The music editor, !Ultra, appears on the icon bar along with a directory icon which lets you access the Sounds$Dir directory where the sounds are stored.

!Ultra consists of three main sections – one to load sounds, one to edit patterns and another to arrange the patterns into their playing order.

The Sounds window has 32 sound slots represented by the letters A to Z and the numbers 2 to 7. You can drag samples into the slots and listen to them by clicking on them. The Tidy option will move all the samples up in the Sound window, removing any empty slots which may separate them.

You can set the path of each sound to Sound$Dir which lets you copy all the sounds used into one directory and access it through the Sound$Dir variable.

Strip Path strips the filepath completely, making the editor search for sounds in the directory the music was loaded from, allowing you to group sounds with the music which uses them.

The Pattern Editor is a variation of the popular grid editor found in many music programs as an alternative to music notation. However, the time scale runs from the top of the screen to the bottom, which will seem strange if you're used to the horizontal variety.

A piano keyboard at the top of the window shows the pitch of the notes and beneath it is the grid. Each beat is divided into eight steps and there are four beats per pattern.

There can only be one sample on each step. A pattern, therefore, can consist of up to a maximum of 32 steps although the length of each sample can be individually set. You can create up to 256 patterns and copy one pattern to another.

You insert a note by clicking on the grid with the Select button and insert a rest or remove a note with the Adjust button. Unfortunately, you don't hear the sample as it is clicked into place, although can you can hear the whole of the pattern you're working on by right-clicking on the Play button in the Play window.

Each note has several attributes which can be individually adjusted – Pitch, Amplitude, Stereo position, Smooth and Length. These are shown in a separate window and also in condensed form in the Pattern Editor next to each step. You can alter the settings on any step using the abbreviated display.

Notes can be entered from a Midi keyboard and from the computer's keyboard, although these must be used in real-time while other tracks are playing. The computer keyboard can only play across one octave, but you can change the octave with a select button.

Using a grid to display notes is a tried and tested idea, but the grid is too fine for easy note placement. It's only a couple of pixels between notes, and as the pitch indicator – the keyboard – is at the top of the screen, it's not always easy to find the pitch you want. It works, it's just a little fiddly, that's all. A zoom function might help.

The Play window contains tape recorder-type Play, Fast Forward and Stop buttons. You can set the position from which the song will begin to playback, the overall length of the song and a loop point – the place to which the song will return if it is set to loop.

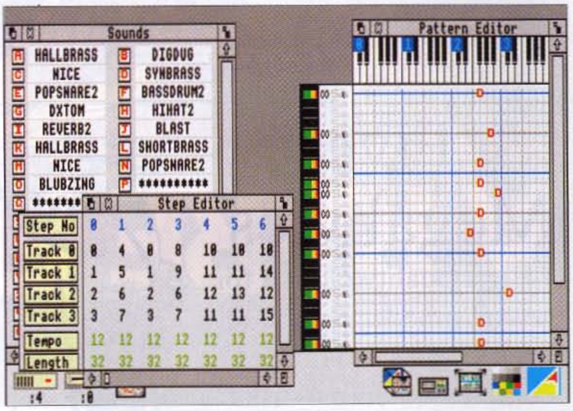
There is also an Autofade option which causes the last three to six patterns – depending on their length – to fade out – a nice touch, especially for music to be used in games.

Patterns are linked in the Step Editor window. UltraSonic can handle up to four parts which the Step Editor calls Tracks. It can handle up to 256 steps and on each step you can specify a different pattern for each of the four Tracks, a Tempo setting and a Length. There are insert, delete and copy functions here, too.

The length of the song is shown in the Step Editor in black, although the length is actually adjusted from the Play window which, in turn, is called from the Pattern Editor.

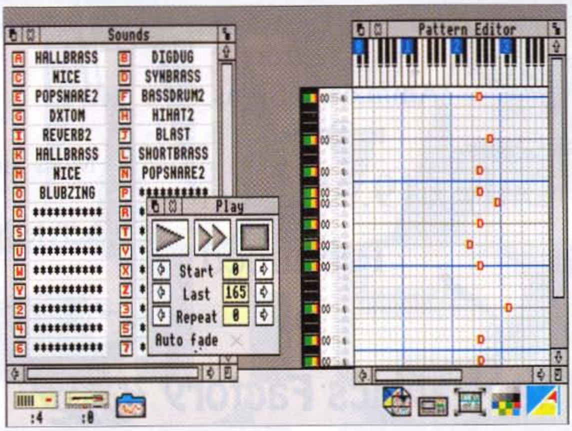
UltraSonic has its own file format, so you can't load sounds from other sources although the discs contains a converter program which lets you

➤



A	HALLBRASS	B	DIGDUG
C	NICE	D	SYNBRASS
E	POPSNARE2	F	BASSDRUM2
G	DXTOM	H	HIHAT2
I	REVERB2	J	BLAST
K	HALLBRASS	L	SHORTBRASS
M	NICE	N	POPSNARE2
O	BLUBZING	P	**********
Q	*******		

Step No	0	1	2	3	4	5	6
Track 0	0	4	0	8	10	10	10
Track 1	1	5	1	9	11	11	14
Track 2	2	6	2	6	12	13	12
Track 3	3	7	3	7	11	11	15
Tempo	12	12	12	12	12	12	12
Length	32	32	32	32	32	32	32



A	HALLBRASS	B	DIGDUG
C	NICE	D	SYNBRASS
E	POPSNARE2	F	BASSDRUM2
G	DXTOM	H	HIHAT2
I	REVERB2	J	BLAST
K	HALLBRASS	L	SHORTBRASS
M	NICE	N	POPSNARE2
O	BLUBZING	P	**********
Q	**********	R	*
S	**********	T	*
U	**********	V	*
W	**********	X	*
Y	**********	Z	*
2	**********	3	*
4	**********	5	*
6	**********	7	*

Start 0
Last 165
Repeat 0
Auto fade

➤ adjust the length, pitch and volume of a sample. They are stored in logarithmic bit 0 sign format which can be sent straight to the VIDC.

You can convert samples from linear to logarithmic format, which will be necessary with Armadeus and SoundTracker samples, for example.

The ST>Ultra program converts SoundTracker files to UltraSonic format. Oddly, the demo files are SoundTracker conversions.

While it's nice to be able to load files from other programs, wouldn't it be nice if programmers used their own program to produce the demo files, just to show what it could actually do? Seems strange to me.

I didn't have a great deal of success converting files produced by Tracker version 1.0+++. Some old SoundTracker files converted but the samples didn't go across well.

After conversion they had to be run through the Sample Converter and then they lost something in the translation. The conversion invariably severely reduced the volume of the music, too, and even the demo files are almost half the volume of Tracker music.

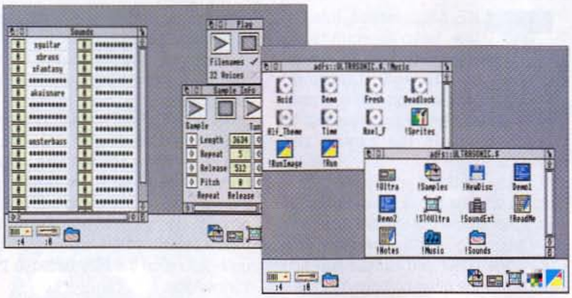
The Archimedes needs all the help it can get with its sound output. UltraSonic's low level doesn't help.

The ExSound module in the !SoundExt directory can be used to play background music from BASIC. It's PD, too, so you can freely use it with your own programs. If loaded from !SoundExt it reserves 250K of sample workspace and 40K of of music workspace. You can *RMLoad the module and allocate different amounts of workspace using *SoundRMASize and *MuiscRMASize.

*MusicLoad will then load and start playing a piece of music, bearing in mind that you may have to change the current directory or Sound$Dir variable if the samples do not have full filenames.

A Notes file on disc describes the commands and calls required to use the ExSound module. There's little explanation here – it's assumed you know what you're doing. However, there are a couple of demo programs in Basic, an analysis of which will help you get started.

Whether you use UltraSonic from Basic or just use the Editors to create music, the 150 samples should keep you well supplied with sounds. The manual is a mere six pages in length and while it explains the basic functions of the program, it is woefully inadequate. You will be able to fuddle your way through – but why should you?



A short tutorial would be quite easy to write and the program really needs a few simple hands-on examples. UltraSonic is not difficult to use, but it could have been made much easier. However, it is fully Risc OS compatible which is a first for this class of program – which doesn't include Maestro and Rhapsody. The Archimedes has a superb user-interface and it's annoying to see programs which don't use it so well done for that. If you don't already have Alpine's Creator, you can buy both UltraSonic and Creator for £62.95, a saving of £6.

Summing up

Sample player programs tend to have been written by hackers for hackers. UltraSonic tries to be more accessible, but the manual and certain areas of implementation let it down a little.

If you baulk at Tracker's numeric approach you may well prefer UltraSonic's grid and Risc OS approach. It's cheaper, too.

Five Megabytes
of High Quality Clipart for the Archimedes & A3000.
Over 350 Mono Images compressed onto 4 disks with Topics ranging from Animals to Signs to Trees!
Only £19.95 ex. VAT
Produced by
The Graphics Factory

The ClipArt Collection

Units 18e & 18f Boxer Place,
Moss Side Employment Centre, Leyland, Preston,
PR5 3QL
Telephone (0772) 623000 Fax (0772) 622917
Educational & Government Orders Welcome

Routine MATTERS

Stephen Wade introduces another selection of your clever routines

If you have written a routine that may be of interest to other readers and is suitable for publication in this column, do not hesitate to send it on disc or tape along with documentation to: *Stephen Wade, Routine Matters, The Micro User, Europa House, Adlington Park, Macclesfield SK10 4NP*

Don't forget to give us your name, address and telephone number, and enclose a stamped addressed envelope to guarantee the return of your media. Also provide us with a declaration stating that the routine is all your own work, has not been submitted elsewhere, and that we have your permission to use it.

Smarten up your displays

Author: Pete Goodliffe
Language: Basic
Filename: SmrtTxt

SMART text is essentially a complex – yet short – program which prints enlarged text on the screen by reading individual character definitions with *Osword 10*. It does this in order to draw a scaled version of each character using various graphics commands in conjunction with a complex formula.

Exactly how it works would take a while and a great deal of space to explain fully, but experienced programmers should be able to follow the logic in the program and determine exactly what happens and how it is done.

All you need to know in order to use the program is the parameters which the procedure *xtext* requires to produce the effect. They are:

- The string of text to be printed
- Bottom left X co-ordinate
- Bottom left Y co-ordinate
- Top right X co-ordinate
- Top right Y co-ordinate

The co-ordinates relate to the position of the whole enlarged string on the screen and thus the total area to be covered by it.

Interesting effects can be obtained using distorted text in the background, or by passing the co-ordinates to the procedure in a different order. For example, passing the top right co-ordinate followed by the one for bottom left will print the text upside down.

This opens up many possibilities, such as adding a shadow to displays and many other other similar effects.

As yet, the program cannot handle vertical or diagonal text printing – although it must surely be possible. Can anyone produce a routine of reasonable speed which will do this?

```
   10 REM Smart Text
   20 REM by Pete Goodliffe
   30 REM (c) The Micro User
   40 MODE 2:VDU 23,1,0;0;0;0;
   50 DIM G%(7):A%=&A:X%=&80:Y%=0
   60 FOR M=1 TO 8:READ col,A$,X1,Y1,X2,
Y2:GCOL 0,col:PROCxtext(A$,X1,Y1,X2,Y2):
NEXT:GCOL 0,2:MOVE 50,850:DRAW 1230,850
   70 VDU 31,0,20:END
   80 DEF PROCxtext(A$,X,Y,L,H)
   90 L=(L-X)/LENA$/8:H=(Y-H)/8
  100 FOR N=1 TO LEN(A$)
  110 ?&80=ASC(MID$(A$,N,1)):CALL &FFF1
  120 FOR A=0 TO 7:FOR B=8 TO 1 STEP-1
  130 IF(?(&81+A)AND 2^(B-1))<>0 MOVE X+
(N-1)*L*8+(8-B)*L,Y-A*H:PLOT 0,L,0:PLOT
81,-L,-H:PLOT 81,L,0
  140 NEXT:NEXT:NEXT:ENDPROC
  150 DATA 6,SMART-TEXT,50,1015,1230,850
  160 DATA 1,By Pete Goodliffe,50,840,12
30,810
  170 DATA 4,ROUTINE,0,800,1250,550
  180 DATA 5,MATTERS,30,550,1220,450
  190 DATA 3,1,1210,800,1280,735
  200 DATA 3,9,1210,735,1280,670
  210 DATA 3,9,1210,670,1280,605
  220 DATA 3,1,1210,605,1280,540
```

READ all about the DATA

Author: Jonathan Markland
Language: Basic
Filenames: DataCnv and ReadDta

WITH assembled machine code programs or Ascii data files it is often difficult to pass on the stored information to fellow users by way of paper.

The same is true about trying to append predefined data to a program in a format which can be easily understood and converted back.

One simple solution is to translate the data file into the form of DATA statements. The resulting lines can be output to a new file, and subsequently either printed out or attached to a program by way of the **EXEC* command.

This is the principle behind the program below. It converts an Ascii data file into a set of DATA statements in a separate file, requiring several pieces of information to be input in order to go about its task.

These are:

- Name of the source data file
- Name of destination file for DATA statements to be output to
- Line number to commence with
- Increment between subsequen line numbers
- Number of bytes to be output to each line (between 1 and 120)

The program is compatible with the whole range of 8-bit Acorn micros containing Basic II or later and connected to a disc system or network. Owners of Basic I machines will need to substitute the *OSCLI* command for a *PROCos* type routine.

Reading the data back into a useable format is quite straightforward: Simply *EXECute the file created by the program while in Basic to enable the lines to be used in a program. The above listing shows how an Ascii string can be read back into memory starting at &900 from coded DATA lines. Using a similar routine pure machine code data could be restored and then either saved or executed.

```
   10 addr=&900:RESTORE
   20 REPEAT:READ A$
   30 IF A$<>"--" PROCdata
   40 UNTIL A$="--"
   50 PRINT $&900:END
   60 DEF PROCdata:FOR J=1 TO
LEN(A$)-1 STEP 2:$addr=CHR$(EVAL("&
"+MID$(A$,J,2))):addr=addr+1:NEXT:E
NDPROC
   70 DATA 2A4775657373207768617 43F
   80 DATA 20497420776F726B73212A0D
   90 DATA --
```

```
   10 REM Data file to DATA statement
   20 REM conversion program
   30 REM by Jonathan Markland
   40 REM (c) The Micro User
   50 REPEAT:INPUT ''"Name of source fil
e: "source$:UNTIL source$<>""
   60 REPEAT:INPUT "Name of destination
file: "dest$:UNTIL dest$<>""
   70 REPEAT:INPUT "Start line number: "
line%:UNTIL line%>=0
   80 REPEAT:INPUT "Line number incremen
t: "lineinc%:UNTIL lineinc%>0
   90 REPEAT:INPUT "Number of bytes per
line: "bpl%:UNTIL bpl%>0 AND bpl%<121
  100 PRINT:OSCLI "SPOOL "+dest$:X%=OPEN
IN source$:REPEAT:C%=0:PRINT STR$(line%)
"DATA ";:line%=line%+lineinc%:REPEAT:C%=
C%+1:J%=BGET#X%:IF J%<16 PRINT "0";
  110 PRINT STR$~(J%);:UNTIL EOF#X% OR C
%=bpl%:PRINT:UNTIL EOF#X%
  120 PRINT STR$(line%)"DATA --":OSCLI "
SPOOL":CLOSE #0:PRINT '"File "+dest$+" c
omplete.":END
```

AMAZE YOUR FRIENDS

and win new ones

with OAK RECORDER!

Achieve more social and economic success... by putting more **CHARACTER** into your sound samples. It's ***simple*** and ***easy*** with this brand new, phonologically designed and tested audio apparatus.

BE A "SOMEBODY"

Teachers, salesmen, schoolchildren and even ***ROYALTY*** can increase their personal stature with this ***EASY TO USE*** marvel of modern science. ***Simple*** and ***discreet*** plug in device lets you enhance your applications, liven up those dull presentations or spice up the sound effects for that ***important*** drama production.

LATEST "SPACE AGE" TECHNOLOGY

Revolutionary ***ASTRO–SONIC*** capsule protected from unwanted "structure–borne" vibrations means your sound samples are ***clear*** and ***free*** from excessive distortion. Features handy ***"Auto–Start"*** switch for remote control. Micro–matic electronics simply plug into your printer port..... just run the software and go. ***Solid State Circuitry*** means LASTING RELIABILITY and the ***quality*** you have come to expect from OAK SOLUTIONS. Integrates with Genesis II and the new Genesis Plus, and works with popular sound sampling software from EMR.

FOR JUST A FEW POUNDS
LIFE ABOUNDS WITH SOUNDS

This could be you!

"Oh Jerome - thank you so much for my Oak Recorder!"

MAIL THIS COUPON TODAY!

Oak Solutions
Cross Park House
Low Green
Rawdon
Leeds LS19 6HA
Tel: 0532 502615

Please rush me.........Oak Recorder(s)
at £29.95 each plus £3 p&p plus VAT

Name ....

Address ....

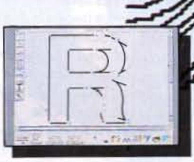
....

....

Give your software a hard edge

• • • • • • •

In the jungle of Desktop Publishing and Computer Aided Design, tracking down the perfect drawing tool can seem like a never-ending task.



Now discover **TRACER**, the ideal companion for users of all DTP and scanning packages.

TRACER will take a sprite file and turn it into a draw file, which can then be edited or manipulated without any loss of detail.

Amongst the many features of **TRACER** is a **curve fitting facility, variable trace options** and the unique **Automatic Tracing Facility** – giving you the control to keep even your wildest image in line!

For use with the Archimedes, **TRACER** is an ARM coded RISC OS multi-tasking application and will easily run on a 1Mb machine.

TRACER. The Creative Computer Drawing program. RRP £52.13 (excl. VAT).

TRACER

THE PERFECT DTP & SCANNER COMPANION

For information and orders
TELEPHONE 061-766 8423
Midnight Graphics, 5 Victoria Lane,
Manchester M25 6AL

Orion Computers Ltd.

Qualified Acorn Dealer ☆ Component Level Service Centre **|** *Econet Service & Installation Centre ☆ Citizen Premier Dealer*

PLEASE REMEMBER when comparing prices - WE DO NOT CHARGE CARRIAGE

on standard delivery within the UK. Next Day Courier Service £6.00 Carriage on Export Orders charged at cost.

Ordering Information

By Post

Please Send your orders including Cheque, Postal Order or
Credit Card Number & Expiry Date (**NOT CASH**) to:
Department MU10
Orion Computers Limited
Units 18e & 18f Boxer Place
Moss Side Employment Centre
Leyland, Preston, PR5 3QL
All Cheques and Bankers Drafts to be made payable to
Orion Computers Limited

By Telephone

Telephone orders may be place between 9:00am and 5:00pm
Please have your Credit Card Number and Expiry Date ready
Tel: **(0772) 623000** Fax: **(0772) 622917**

In Person

Callers Most Welcome. We are situated 3 miles from M6 J28.
on the Moss Side Employment Centre
(see map on facing page)

All offers subject to availability. Government & Educational Orders Welcome. **Minimum Order Value £10.00. Minimum Educational Order Value £15.00. Please Note. VAT is quoted at 17.5%**

Acorn Computers

Special Offer when purchased with computer!!

A3000 -	£35.00 discount off other goods bought with computer, plus either 2Mb Upgrade F.O.C., 4Mb for £100.00
A410/1 -	20Mb HD + Upgraded to 4Mb F.O.C.
A420/1 -	42Mb HD + Upgraded to 4Mb F.O.C.
A440/1 -	ARM 3 F.O.C.
A540 -	4Mb Ram Upgrade F.O.C.

Description	*Ex. VAT*	*Inc. VAT*
BBC Master 128K	£399.00	£468.83
BBC A3000	£599.00	£703.83
BBC A3000 Special Access	£699.00	£821.33
BBC A3000 Learning Curve	£699.00	£821.33
Archimedes 410/1	£1099.00	£1291.33
Archimedes 420/1 Learning Curve	£1299.00	£1526.33
Archimedes 440/1 (47 Mb HD,4Mb Ram)	£1699.00	£1996.33
Archimedes 540 (100Mb HD, 4Mb Ram)	£2995.00	£3519.13

We will try to match or beat any price advertised in this magazine, please phone for best prices.

We operate the Acorn Education Scheme.

We can supply A3000's on the Acorn 0% Finance Scheme.

Finance available over twelve months.	Deposit	Monthly
A3000 Learning Curve Base	£107.66	£59.00
A3000 Learning Curve Colour	£160.21	£79.00

Finance Prices Shown above **INCLUDE VAT**

Cables

Description	*Ex. VAT*	*Inc. VAT*
Arc to Monitor + Audio 1.2m (Not 8833 II)	£8.65	£10.16
Arc to 8833 Mk II Monitor Cable + Audio 1.5m	£8.65	£10.16
Arc Parallel Printer Cable 1.8m	£5.25	£6.17
Arc Parallel Printer Cable 3m	£10.40	£12.22
Arc to BBC Serial Cable 1.2m	£6.95	£8.17
Arc Keyboard Extension Cable 2m	£7.75	£9.11
Arc Mouse Extension Cable 2m	£7.75	£9.11
Arc Keyboard Replacement Cable	£6.95	£8.17
Arc Mouse Replace. Cable (State Type)	£6.95	£8.17
Surge Protector Plug	£10.50	£12.34
4 Way Protector Socket on trailing lead	£17.95	£21.09

We can supply almost any cable made to order.
Please call for details.

A400/1 Accessories

Items marked with an * can be used on A300/540

Description	*Ex. VAT*	*Inc. VAT*
1Mb Ram Upgrade	£39.00	£45.83
2Mb Ram Upgrade	£75.00	£88.13
3Mb Ram Upgrade	£105.00	£123.38
Above memory fitted for £10.00		
Acorn Ethernet Card	£219.00*	£257.33
Acorn SCSI Card	£239.00*	£280.83
Arm 3 Upgrade (Adelph One)	£349.00	£410.08
4Mb to 8Mb Upgrade	£649.00	£762.57
Com. Con. Scan-Light Mk II A4	£369.00*	£433.58
Com. Con. Sheet Feeder for above	£149.00*	£175.08
Com. Con. Scan-Light + Feeder	£454.00*	£533.45
Com. Con. Scan-Light Junior	£174.00*	£204.45
Com. Con. Scan-Light 256	£205.00*	£240.88
Com. Con. Sheet Feeder for A4	£94.00*	£110.45
Lingenuity SCSI Card	£169.00*	£198.58
Acorn MIDI Expansion Card	£65.00*	£76.38
Acorn I/O Expansion Card	£79.00*	£92.83
Acorn MIDI upgrade for above	£27.00*	£31.73
VIDC Enhancer	£27.00	£31.73
Econet Module	£48.00*	£56.40
Beebug Disc Buffer	£29.00	£23.08
Orion TV Modulator + Audio	£65.00*	£76.38

Archimedes 540 Only

Description	*Ex. VAT*	*Inc. VAT*
4Mb Ram Upgrade (Upto 16Mb)	£479.00	£562.83
VIDC Enhancer (540 only)	£10.00	£11.75

Monitors

Description	*Ex. VAT*	*Inc. VAT*
Acorn Colour Monitor (AKF17)	£200.00	£235.00
Philips CM8833 II Colour Monitor	£209.00	£245.58
Microvitec CUB 3000	£199.00	£233.83
Taxan MultiVision 775 (0.28 d.p.)	£389.00	£457.08
Taxan MultiVision 795A (0.26 d.p.) (FST Black Trinitron Anti-Glare Tube)	£469.00	£551.08
Taxan Viking II (19" Mono, MS)	£749.00	£880.08

A3000 Accessories

Description	*Ex. VAT*	*Inc. VAT*
Orion 1 Mb Ram Upgrade (Expandable to 4Mb using only 8 chips)	£55.00	£64.63
Orion 3 Mb Ram Upgrade	£156.00	£183.30
Serial Upgrade	£18.00	£21.15
Acorn User Port/Midi Card	£46.00	£54.05
Acorn Monitor Stand	£27.00	£31.73
PRES Monitor Stand	£24.95	£29.32
PRES System Housing	£69.50	£81.66
PRES Disc Buffer Board	£48.95	£57.52
CC Scanlight Junior A3000	£174.00	£204.45
CC Scanlight A4 Mk II A3000	£369.00	£433.58
CC Sheetfeeder for A4 Scanner	£149.00	£175.08
CC Scanlight A4 + Sheetfeeder	£454.00	£533.45
CC Scanlight 256	£205.00	£240.88
RTFM Joystick Interface + S/W Disk	£34.95	£41.07
Serial Port Joystick Interface	£22.95	£26.97
Voltmace DeltaCat Joystick	£26.00	£30.55
Lingenuity SCSI Controller Card	£149.00	£175.08

Books

Description	*Ex. VAT*	*Inc. VAT*
Programmers Reference Manuals	£77.00	£77.00
BASIC V Guide	£19.45	£19.45
A3000 Technical Guide	£28.95	£28.95
A540 Technical Guide	£65.00	£65.00
Basic V: A Dabhand Guide	£9.95	£9.95
Archimedes First Steps	£9.95	£9.95
Archimedes Assembly Language	£14.95	£14.95
Archimedes User Guide	£15.00	£15.00
Budget DTP: A Dabhand Guide **NEW**	£12.95	£12.95

Extra Manuals

Description	*Ex. VAT*	*Inc. VAT*
Acorn D.T.P.	£10.00	£10.00
1st Word Plus Release 2	£10.00	£10.00
ANSI C Release 3	£20.00	£20.00
ANSI C Release 4 (Desktop C)	£25.00	£25.00
Acorn Assembler Rel. 2 (Desktop Ass.)	£25.00	£25.00

Orion Bulk Diskettes

All our Disks come complete with labels etc. and are
100% certified error free. In the event that a disk fails it will be replaced immediately.
Top row of prices ex. VAT. Bottom row of Prices Inc. VAT.

		Quantity					
		25	50	100	250	500	1000
5¼	DS/DD 96tpi	N/A	£14.00	£26.00	£60.00	£115.00	£210.00
		N/A	£16.45	£30.55	£70.50	£135.13	£246.75
3½	MF/2DD 1Meg	£9.75	£19.50	£34.00	£77.50	£145.00	£270.00
		£11.46	£22.91	£39.95	£91.06	£170.38	£317.25
	Sony Bulk	£12.50	£25.00	£45.00	£106.25	£200.00	£375.00
		£14.69	£29.38	£52.88	£123.84	£235.00	£440.63

Printers

PLEASE NOTE - ALL our printers are **UK** Models and **NOT** grey imports. Please take this into account when deciding where to purchase your printer.

Description	Ex. VAT	Inc. VAT
C.C. Qume Laser Direct	£859.00	£1009.33
C.C. 600 DPI Expansion Card	£309.00	£363.08
Canon LBP4 Laser for above	£699.00	£821.33
C.C. 600 DPI LBP8 Laser Direct	£1319.00	£1549.83
(Free Impression II with Qume/LPB8 Laser Direct)		
Canon Bubblejet BJ10e	£249.00	£292.58
Star LC10	£125.00	£149.88
Star LC 200 Colour	£175.00	£205.63
Star LC24-200 Mono	£205.00	£240.88
Star LC24-200 Colour	£249.00	£292.58
Citizen 120D+ (Parallel)	£115.00	£135.13
Citizen 124D	£165.00	£193.88
Citizen Swift 9	£162.00	£190.35
Citizen Swift 24	£225.00	£264.38
Citizen Swift 24x	£329.00	£386.58

Ribbons (Branded)

Description	Ex. VAT	Inc. VAT
Amstrad DMP2000/3160	£5.50	£6.46
Canon BJ130 Bubblejet	£10.00	£11.75
Canon BJ10e	£16.29	£19.14
Citizen 120D	£3.25	£3.82
Citizen Swift 24 Black	£3.95	£4.64
Citizen Swift 24 Colour	£13.75	£16.16
Colourjet 132/Canon PJ1080 Black	£8.60	£10.11
Colourjet 132/Canon PJ1080 Colour	£14.60	£17.16
Epson LX80/86	£3.75	£4.41
Epson FX80,MX80,LX800	£4.50	£5.29
Epson LQ400,550 Fabric	£5.25	£6.17
Epson MX100,FX1000,FX1050	£5.75	£6.76
Epson EX800/1000 Black	£7.25	£8.52
HP Paintjet Black	£21.00	£24.68
HP Paintjet Colour	£26.00	£30.55
HP Deskjet + (Permanent Ink)	£13.20	£15.51
Panasonic KXP145.KXP115	£7.50	£8.81
Panasonic KXP140	£9.35	£10.99
Star LC10	£3.80	£4.47
Star LC10 4 Colour	£5.75	£6.76
Star LC200 Black	£5.00	£5.88
Star LC200 Colour	£9.75	£11.46
Star LC24/10 / LC24 200 Black	£4.75	£5.58
Star LC24 200 Colour	£11.50	£13.51
Canon LBP4 Toner Cartridge	£59.00	£69.33
Canon LBP8 Toner Cartridge	£69.00	£81.08
Qume Crystal Print Toner Set	£67.00	£78.73
Qume Crystal Print Drum Set	£89.00	£104.58

Ribbons (Comp.)

All of our compatible ribbons are high quality British Brand. We do not sell "White Box" compatible ribbons.

Description	Ex. VAT	Inc. VAT
Amstrad DMP2000/3160	£2.55	£3.00
Brother M1009,M1109	£2.95	£3.47
Brother HR10,15,20,25,35 Fabric	£3.25	£3.82
Brother HR10,15,20,25,35 Multistrike	£4.65	£5.46
Canon PW1080A	£3.85	£4.52
Citizen 120D/Swift 24	£3.05	£3.58
Epson LX80,86	£2.25	£2.64
Epson FX80,MX80,LX800,LX850	£2.95	£3.47
Epson LQ500,LQ800,LQ850	£3.00	£3.53
Epson LQ1000,LQ1050,FX1000	£3.50	£4.11
Epson LQ2500,LQ2550	£3.55	£4.17
Epson EX800	£4.45	£5.23
Panasonic KXP1081,1090,1080	£3.65	£4.29
Panasonic KXP1124	£3.55	£4.17
Seikosha GP100	£3.20	£3.76
Star LC10	£2.55	£3.00
Star LC10 4 Colour	£5.00	£5.88
Star LC24/10	£3.95	£4.64

Please call for prices on any ribbons not listed here. We can supply almost any ribbon required and, dependant on quantity, any colour.

Please Note - Quoting the CARMA Group Code speeds up our search for a ribbon compatible with your printer.

Archimedes/A3000 Software

DTP

Description		Ex. VAT	Inc. VAT
Impression II (CC)		£145.00	£170.38
Impression Junior (CC)		£74.00	£86.95
Impression Business Supplement	NEW	£42.00	£49.35
Tempest D.T.P. (Clares)		£99.00	£116.33
Ovation D.T.P. (Beebug)		£99.00	£116.33
Desktop Folio (ESM)	NEW	£79.00	£92.83

Spreadsheets

Description	Ex. VAT	Inc. VAT
Sigmasheet (Minerva)	£39.95	£46.94
Schema (Clares)	£99.00	£116.33

WordProcessors

Description	Ex. VAT	Inc. VAT
1st Word Plus Release 2 (Acorn)	£69.95	£82.19
Eas!Word (Minerva)	£31.95	£37.54
Protext 5.0 (Arnor)	£119.00	£139.83

Integrated Packages

Description	Ex. VAT	Inc. VAT
Pipedream 3 (Colton)	£119.00	£139.83
Desk Top Office (Minerva)	£99.00	£116.33

Databases

Description	Ex. VAT	Inc. VAT
Datavision (Silicon Vision)	£127.45	£149.75
Flexifile (Minerva)	£119.00	£139.83
Multistore (Minerva)	£199.00	£233.83
Genesis II (Oak Solutions)	£119.00	£139.83
Knowledge Organiser (Clares)	£42.00	£49.35

Accounting Software

Description	Ex. VAT	Inc. VAT
Financial Accountant (S. Vision)	£233.75	£274.66
Home Accounts (Minerva)	£39.45	£46.35
Business Accounts (Minerva)	£325.00	£381.88
Office Tools (S. Vision)	£318.75	£374.53
Shareholder (S. Vision)	£165.75	£194.76
MicroTrader Accounts	£199.00	£233.33
MicroTrader Stock Control	£75.00	£88.13

Languages

Description		Ex. VAT	Inc. VAT
ANSI C Release 3 (Acorn)		£125.00	£146.88
Desktop C (Acorn)	NEW	£189.00	£222.08
Desktop Assembler (/Acorn)	NEW	£129.00	£151.58
RiscForth (S. Vision)		£127.45	149.75

Music

Description		Ex. VAT	Inc. VAT
Armadeus (Clares)		£61.00	£71.68
Rhapsody II (Clares)	NEW	£44.95	£52.82
Tracker (Serial Port)		£38.95	£45.77

Utilities

Description	Ex. VAT	Inc. VAT
Arc DFS (Dabs Press)	£22.95	£26.97
Dot Matrix Colour Printer Driver (Ace)	£13.00	£15.28

Education

Description	Ex. VAT	Inc. VAT
Maths Pack (HS Software)	£11.95	£14.04
Reading Pack (HS Software)	£15.75	£18.51
Bumper Pack II (HS Software)	£15.75	£18.51

Graphics Manipulation

Description	Ex. VAT	Inc. VAT
Poster + Fonts (4Mation)	£79.00	£92.83
Render Bender (Clares)	£58.00	£68.15
Solids Render (S. Vision)	£127.45	£149.75

Graphics - Art

Description	Ex. VAT	Inc. VAT
Artisan II (Clares)	£49.95	£58.69
Pro Artisan (Clares)	£79.00	£92.83
Atelier (Minerva)	£79.00	£92.83
The Clipart Collection Vol. 1	£19.95	£23.44

Graphics - Presentation

Description	Ex. VAT	Inc. VAT
Hotlink Presenter(Lingenuity)	£46.95	£55.17
Graphbox (Minerva)	£62.45	£73.38

Games

Description		Ex. VAT	Inc. VAT
Arcpinball (Shibumi)		£18.00	£21.15
ARCticulate (4th Dim.)	NEW	£18.00	£21.15
Ballarena (Eterna)		£14.75	£17.33
Blowpipe (Eclipse)		£14.45	£16.98
Blaston (Eterna)	NEW	£14.45	£16.98
Boogie Buggy (4th Dim.)	NEW	£18.00	£21.15
Break 147/Superpool (4th Dim)	NEW	£18.00	£21.15
Chess 3D (Micropower)		£14.45	£16.98
Chocks Away Version II (4th Dim.)		£18.00	
Chocks Away Extra Missions	NEW	£14.45	£16.98
Chocks Away Compendium	NEW	£28.00	£32.90
Drop Ship (4th Dim.)		£14.45	£16.98
E - Type (4th Dim.)		£14.45	£16.98
E - Type 100 Miles (4th Dim.)		£12.75	£14.98
Fine Racer (Eterna)	NEW	£14.45	£16.98
Gumshoes (4th Dim.)	NEW	£18.00	£21.15
Holed Out (4th Dim.)		£14.45	£16.98
Holed Out Designer (4th Dim.)		£14.45	£16.98
Holed Out Vol. 1 or 2 (4th Dim.)		£12.75	£14.98
Hostages (Superior)		£14.45	£16.98
Iron Lord (Cygnus)		£14.45	£16.98
Inertia (4th Dim.)		£14.45	£16.98
Interdictor 2 (Clares)		£26.00	£30.55
Mad Professor Mariarti 1 or 2 (Krisalis)		£14.45	£16.98
Manchester Utd. 1 or 2 (Krisalis)		£19.50	£22.91
Master Break (Superior)		£14.45	£16.98
Microdrive 3D USA Courses		£14.75	£17.33
Microdrive 3D European Co.	NEW	£14.75	£17.33
Mig-29 Fulcrum (Domark)	NEW	£29.00	£34.08
Minipack 5 (C.I.S.)		£23.95	£28.14
Nevryon (4th Dim.)		£14.45	£16.98
No Excuses (Arcana)	NEW	£14.45	£16.98
Powerband V. II (4th Dim.)		£18.00	£21.15
The Real McCoy 1 or 2 (4th Dim.)		£21.50	£25.26
Turtles Tour the World (E. Crayon)		£14.45	£16.98
Twin World (Cygnus)		£14.45	£16.98
Saloon Cars (4th Dim.)	NEW	£18.00	£21.15
Speech (Superior)		£14.45	£16.98
Wimp Game (4th Dim.)		£14.45	£16.98
World Champ. Boxing Man. (Krisalis)		£19.50	£22.91
Wonderland (Virgin)	NEW	£24.50	£25.79

CAD

Description	Ex. VAT	Inc. VAT
ARC-PCB (S. Vision)	£165.75	£194.76
PCB Professional (S. Vision)	£318.75	£374.53
SolidCAD (S. Vision)	£127.45	£149.75

Misc

Description		Ex. VAT	Inc. VAT
PC-Emulator V1.6 (Acorn)	NEW	£94.00	£110.45
Investigator II (Serial Port)	NEW	£22.95	£26.97

Please ring for current prices on software NOT listed here

Hard Drives

Orion SCSI drives are high speed, typically 750K - 1200K per second, they are extremely quiet, and the external drives come in a small case unlike those of some of our competitors. Price includes SCSI expansion card

ST506 Internal (A410)

Description	Ex. VAT	Inc. VAT
20Mb Drive	£139.00	£163.33
42Mb CMS Drive	£249.00	£292.58
47Mb Rodime Drive (Same as 440/1)	£349.00	£410.08

SCSI Internal (Suitable for A300 & A400)

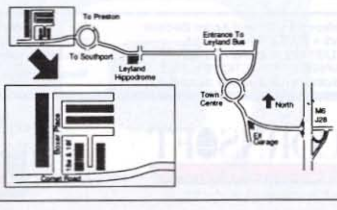
Description	Ex. VAT	Inc. VAT
53 Mb Drive	£369.00	£433.58
75/80 Mb Drive	£499.00	£586.33
105 Mb Drive	£699.00	£821.33
175 Mb Drive	£949.00	£1115.08

SCSI External (Specify A3000 or A400)

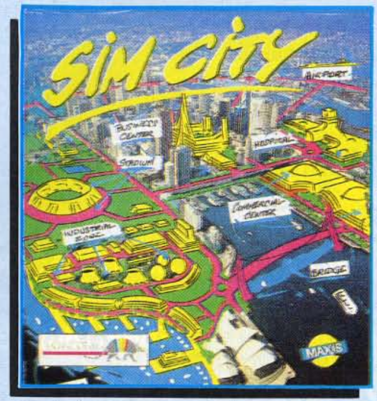
Description	Ex. VAT	Inc. VAT
53 Mb Drive	£429.00	£504.08
75/80 Mb Drive	£599.00	£703.83
105 Mb Drive	£749.00	£880.08
175 Mb Drive	£1049.00	£1232.58
345 Mb Drive	£1499.00	£1761.33
SyQuest 42Mb Removable Drive	£599.00	£703.83

Larger drives available on request please phone

Where to find us!



SUPERIOR SOFTWARE



Harbour Development

Regional Map

SIM CITY

The Unique Award-Winning City Simulation Game

With SIM CITY, take the destiny of the world's greatest cities in hand. Build houses, streets, factories, airports and power stations. You will have to fight crime and pollution, collect taxes and balance your budget.

Everything is managed and animated in real time. Every decision influences instantly the life of your town. You will face crises, natural disasters (tornadoes, earthquakes, etc.), but - who knows - maybe one day you will construct the perfect city.

SIM CITY is an all-absorbing and unique game. Other computer versions were voted the TOP GAME and TOP SIMULATION of the year in America (1989) and received a TILT D'OR award in France (1990).

BBC Micro/Master & Electron

HOSTAGES

Realistic Graphics & Gameplay...Superb Sound Effects & Tunes

An urgent phone call from the National Security Minister....an Embassy has been overrun by terrorists. As Head of the Terrorist Combat Squad you are in control of all operations.

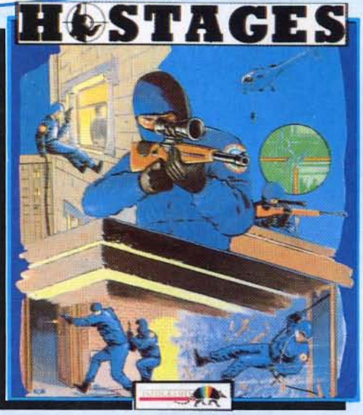
First, you must place your crack marksmen in nearby buildings, avoiding infrared lights and the terrorists' deadly aim. Then, after descending by rope, and protected by your marksmen, enter the Embassy through the windows and begin your search in silence. But beware, each door, each room, could be a death trap!

You must rescue the hostages, without any loss of life, and this will depend on the cohesion and co-ordination of your team.
NOW IT'S YOUR MOVE ! KEYBOARD OR JOYSTICK/MOUSE CONTROL.

BBC Micro/Master, Electron & A3000/Archimedes

BBC Micro/Master

A3000/Archimedes



PLAY IT AGAIN SAM 14
PREDATOR
BALLISTIX
SUPERIOR SOCCER
STAR PORT

Superior Soccer

Star Port

PLAY IT AGAIN SAM 14

A New Action-Packed Four-Game Compilation

PREDATOR

Nothing like it has ever been seen before! You've heard about the Schwarzenegger film PREDATOR...now you can play the leading role. Fight your way through the South American jungle, but, beware the mysterious alien...

"A fun game having a lot of the feel of a Schwarzenegger film"...Micro User

SUPERIOR SOCCER

A fast action arcade game, with realistic graphics, or a challenging football management game...or, for the ultimate in football excitement and realism, you can play a combination of both!

"Puts you in the role of football player/ manager, combining on-the-field action with strategic planning just like the real thing!"...BBC Acorn User

BALLISTIX

It's a whole new ball game! The fastest, wackiest, toughest computer game yet to appear. Play against a friend or the computer...60 different screens.

"Ballistix is original, fun and very addictive. Each new level is a challenge which brings a new court layout with several surprises"
...Electron User

STAR PORT

A brand-new arcade-adventure with 60 action-packed screens, written by the author of QUEST and CAMELOT. Rescue the medical supplies from the strange triangular space station...but only if you can solve the increasingly difficult letter-puzzles on each level.

BBC Micro/Master & Electron

SIM CITY
BBC Micro/Electron Cassette...£12.95 BBC Micro 5¼"Disc...£14.95
Master Compact 3½"Disc......£19.95

HOSTAGES
BBC Micro/Electron Cassette...£9.95 BBC Micro 5¼"Disc...............£11.95
Master Compact 3½"Disc....£14.95 A3000/Archimedes 3½"Disc...£19.95

PLAY IT AGAIN SAM 14
BBC Micro/Electron Cassette.....£9.95 BBC Micro 5¼"Disc...£11.95
Master Compact 3½" Disc......£14.95

BBC Micro Cassettes & BBC Micro 5¼" Discs are compatible with BBC B, B+ & Master 128 computers. Screen pictures show the BBC Micro versions of the games, unless otherwise stated.

We have in stock over 30 different titles for the BBC Micro/Master and Acorn Electron computers including such great games as: ELITE, REVS + REVS 4 TRACKS, EXILE, A QUESTION OF SPORT, REPTON INFINITY, RICOCHET, LAST NINJA 2 and PERPLEXITY, and the compilation titles: ACORNSOFT HITS 1 & 2, SUPERIOR COLLECTIONS 1, 2 & 3 and PLAY IT AGAIN SAMS 1 to 14. All are available for immediate despatch.

Our A3000/Archimedes titles include great classics such as ZARCH, CONQUEROR and REPTON 3 (now with enhanced graphics), and the new highly praised golf simulation/designer, SUPERIOR GOLF.

Please write to the address below or telephone for a full list of Superior Software games

SUPERIOR SOFTWARE ACORNSOFT

(Superior Software is a trading name of Superior Microcomputing Ltd.)
Dept. D1, P.O. Box 6, Brigg, S. Humberside DN20 9NH. Tel: (0652) 58585

PLEASE MAKE CHEQUES
PAYABLE TO "SUPERIOR SOFTWARE."

Access VISA

24 HOUR TELEPHONE
ANSWERING SERVICE FOR ORDERS

OUR GUARANTEE

- All mail orders are despatched by first-class post
- Postage and packing is free
- Cassettes and discs that are faulty on receipt will be replaced immediately

(This does not affect your statutory rights)

Contex Computing

BANK MANAGER

Complete and versatile personal accounts program. Consistently acclaimed!

'data entry is a delight...professional...excellent product' Micro User April 86

Standard version: Enter cheques and receipts. Automatic date sequencing. Reconcile statements. Search, amend and delete. Analyze expenditure. Forward cash flow forecast. Budgets. Up to 36 bank accounts online, inter account transfers, 9999 standing orders, 99 analysis headings, over 4,000 postings on an 80tk diskette. Reports to screen or printer. Mix foreign currencies, graphics, password, file recovery, field editing, programmable reports.

Master/Compact version adds ADFS/hard disk support, sideways RAM, 40/80 col screen reports, and other enhancements.

Archimedes /A3000 adds high speed native mode, RAM disks, wild card analysis enquiries, sort and more. *'Impressed...ideal...easy to use' Micro User March 88*

Bank Manager (all versions; disk systems only) £25.00

BANK MANAGER BUSINESS UTILITY

For the club accounts or small business user. From the Bank Manager data files print "trial balance" or "P&L reports" via the programmable spreadsheet generator.

Business Utility Pack (needs the Bank Manager) £12.00

TYPING TUTOR

Quickly learn to touch type. Over 90 smoothly graded lessons graduate you from the basic home keys to complete keyboard mastery. Word scan or exact key checking, targets may be revised, rhythm metronome, key click, free format options. Recommended for adult education. ***Typing Tutor £15.00***

SPREADSHEET MK V

Low cost versatile spreadsheet. 26 cols, 900 (Arch/A3000) or 99 (B/Master) rows, many functions and facilities including programmable report writer and input scripts.

Spreadsheet MK V disk £15.00

All programs available in B, Master/Compact and Archimedes/A3000 versions. Archimedes/A3000 versions are RISC OS compatible

State type of computer (eg A3000, B, Master) and disk type (eg 3½" or 5¼" 40 track or 5¼" 80 track). Please add £1 P&P (Overseas £3.50)

CONTEX COMPUTING
(Ref MU), 15 Woodlands Close,
Cople, Bedford MK44 3UE

Access VISA

Tel: 0234 838347

FACT SYSTEMS (BARROW) LTD

UNIT 19, FOCUS 303 BUSINESS CENTRE, SOUTH WAY
WALWORTH IND. EST. ANDOVER, HANTS. SP10 5NY

SPECIAL SUMMER OFFER

Archimedes A540 + TAXAN 795 Multiscan Colour Monitor + VIDC Enhancer
ONLY £2950 +VAT (£3466.25) inc carriage (cheque/cash only)
A540 4Mb Ram Upgrade £445+VAT (£522.88)

	Base	Colour
A3000 Base	£530	£725
A3000 Learning Curve	£619	£814
410/1 Base	£899	£1094
420/1 Base	£1099	£1294
420/1 Learning Curve	£1135	£1330
440/1 Base	£1449	£1644
A540 Base	£2649	£2840

Monitors (free lead)

Acorn Stereo Colour Monitor	£195
Microvitec Cub3000	£199
Philips CM8833 Colour MkII	£220
TAXAN 775 multiscan	£440

Accessories

400/1 1Mb RAM	each £50
400/1 40Mb Hard Disk (ST506)	£289
A3000 1Mb Upgrade	£55
A3000 3Mb Upgrade	£199
A3000 45Mb Hard Disk	£349
A3000 Serial upgrade	£18
A3000 Monitor Stand	£27
ROM Expansion Card	£41
MIDI Expansion Card	£64
A3000 User Port/Midi	£45

Languages

ISO Pascal, Fortran 77	each £85
ANSI 'C' Release 3	£125
Assembler	£169
RISC Basic Compiler	£115

Books (no VAT)

RISC OS Prog Ref Manual	£75
BBC BASIC Guide	£19
A3000 Technical Ref Manual	£29
Assembly Language	£14
Arc Operating System	£14
Archimedes First Steps	£9.95

Utilities

Software Developers Toolbox	£169
Twin	£28
PC-Emulator (NEW v1.60)	£89
Clares Toolkit Plus	£38
Artisan 2	£47
Render Bender	£61
Hearsay	£52
Multi-FS	£30

Business

1st Word Plus rel. 2	£62
Impression Junior	£79
Impression II	£140
Schema	£98
Pipedream 3	£119
Acorn DTP	£120
System Delta Plus v2	£52
Flexifile	£115

Educational

Fun School 2	each £16
Fun School 3	each £20

Please add VAT at 17.5%

Carriage:

Software	Free
Hardware, Other	£P.O.A.

OPEN Mon-Fri 10AM-5PM
Sat 10AM-4PM

Games

Alerion	£10
Alien Invasion	£10
All in Boxing	£10
Apocalypse	£19
Arcendium	£15
ARCticulate	£19
Ball Arena	£14.50
Boogie Buggy	£18
Break 147/Super Pool	£20
Caverns	£12.72
Chess 3D	£16
Chocks Away MkII	£19
Chocks Away Extra Missions	£15
Clares Arcade 3	£10
Drop Ship	£14.50
E-Type	£14.50
Gum Shoes	£18
Holed Out	£14
Hostages	£15
Interia	£13
Interdictor 2	£26
Iron Lord	£15
Mad Professor Mariarti	£14
Micro Drive, Golf	£14
Mig 29 Fulcrum	£30
Nevryon	£15
Olympics	£14
Overload	£10
Powerband MkII	£19
Red Shift	£14
Saloon Cars	£20
The Olympics	£14
The Real McCoy	£20
The Real McCoy 2	£24
Twin World	£15
White Magic 1/2	each £12
Worra Battle	£11.87

Printers (free lead)

STAR LC-10	£159
STAR LC-200 Colour	£208
STAR LC24-10	£208
STAR LC24-200	£259

ANDOVER (0264)334811

WeServe of Hampshire Best for service

Panasonic

KXP4420 Laser

512k ram 8 pages per minute
2 years on Site warrantee

£648 + VAT

KXP1081	£129.00
KXP1180	£134.00
KXP1123*	£185.00
KXP1124i*	£252.63

prices inc VAT, cable & paper
* 24 pin printers

Philips BM7502

Green Screen Monitor with cable
£69.00 + VAT

Philips CM8833 Mk2

Colour Monitor with cable
£225.00 (£195.65 + VAT)

Taxan 775

Multisync Monitor with cable
£369.00 + VAT

Taxan 795-A

Trinitron Multisync + VIDC
£419 + VAT

PRINTER RIBBONS

	Ex VAT	Inc VAT
LX800 & FX800 Print Ribbon	£2.29	£2.69
LC10 Print Ribbon	£4.00	£4.70
120D Print Ribbon	£4.00	£4.70
Taxan/Canon Ribbon	£3.22	£3.78
Juki 6100 Print Ribbon	£1.60	£1.88

Phone for full range 100 + original & Compatible ribbons - Bulk discounts

UPGRADES/8271

	Ex VAT	Inc VAT
27128A 250nS 12.5v	£3.00	£3.52
8271 controller	£38.26	£44.95
6264 LP 150nS	£3.00	£3.53
Acorn 8271 DFS	£44.26	£52.00
Acorn 1770 DFS	£45.11	£53.00
A3 Concept Keyboard	£139.00	£163.32
Master Keyboard	£50.21	£59.00
Acorn Tracker Ball	£38.30	£45.00

A410 + 4M + 40M HD

£1410.00 (£1200.00 + VAT)

A440 + Colour

£1639.00 (£1394.00 + VAT)

A420LC + Colour

£1492.25 (£1270.00 + VAT)

A540 + Multisync

£3290.00 (£2800.00 + VAT)

A3000 + 2m RAM

£658.00 (£560.00 + VAT)

A3000 LC + 2m RAM

£775.50 (£660.00 + VAT)

Star

LC10	£149.00
LC200	£199.00
LC2410	£188.00
LC24200	£244.40
LC24200Col	£299.00

prices inc VAT, cable & paper

Swift 24

2 year warrantee

£245.00 inc VAT

Colour kit with printer £24.00

Citizen 120D+

with cable and paper
£128.00 (£108.94 + VAT)

Canon LPB-4

300dpi Laser with cable & paper
£629.00 + VAT

Canon BJ10e

360dpi Ink jet with cable & paper
£199 + VAT

ROMS/SOFTWARE

	Ex VAT	Inc VAT
Inter-Word Rom	35.75	42.00
Spell Master Rom	40.00	47.00
View 3 Rom	40.00	47.00
DTP-Acorn	106.38	125.00
Impressions II	134.47	158.00

Phone for BBC/Archimedes Software catalogue 100's of titles inc. Educate

A3000 1M Upgrade

£57.58 (£49.00 + VAT)

20M HARD DISC

£139.83 (£119.00 + VAT)

DISKETTES

SONY branded

(100% certified error free)

	Inc. VAT
10 3.5" DS/DD 135 tpi	£7.50
50 3.5" DS/DD 135 tpi	£32.31
100 3.5" DS/DD 135 tpi	£59.93
1k 3.5" DS/DD 135 tpi	£540.50

DISKETTES

(lifetime warranty) SONY bulk

(100% certified error free)

	Inc. VAT
10 3.5" DS/DD 135 tpi	£5.95
50 3.5" DS/DD 135 tpi	£19.80
100 3.5" DS/DD 135 tpi	£37.95
250 3.5" DS/DD 135 tpi	£84.89
1k 3.5" DS/DD 135 tpi	£339.58
50 x 3.5" Disk Box with lock	£5.99
100 x 3.5" Disk Box with lock	£7.50

3M branded

	Exc VAT
10 3.5" DS/DD 135tpi	£7.00
10 3.5" DS/HD	£13.50
10 5.25" DS/DD 48tpi	£5.00
10 5.25" DS/HD	£9.00

Phone for our 40 page catalogue

EDUCATIONAL AND GOVERNMENT ORDERS WELCOME

All products have a 30 day money back & 12 month warranty.
Prices subject to variation without prior notification.
Established 6 years. We are closed Saturday afternoons.
Free parking. 2 minutes from M27 Junction 11.
Postage 94p (80p + VAT) Securicor £6.46 (£5.50 + VAT).

Access **WeServe** VISA

Larger items delivered
by Securicor

Micro Dept
40-42 West Street,
Portchester, Hants.
PO16 9UW
Tel: 0705 325354

Software bargains at the lowest prices!

Archimedes

	SRP	SALE
Arcade Games		
Ballarena	20.39	15.95
Blaston	19.95	15.95
Bubble Fair	19.95	15.95
Bug Hunter in Space	18.34	15.50
Fine Racer	19.95	15.95
Iron Lord	19.95	15.95
Mad Professor Mariarti	20.39	15.95
MIG-29 Fulcrum	40.85	31.95
Twinworld	19.95	15.95
Wonderland	35.75	29.75
Zelanites The Onslaught	24.95	24.95
Adventure Games		
Corruption	30.60	11.95
Fish	30.60	11.95
Buy both Fish & Corruption		£19.95
"Mind" Games		
Chess 3D	19.95	19.95
Simulation Games		
Chocks Away Compendium	39.95	35.95
Chocks Away Extra Missions	19.95	17.95
Interdictor II	36.00	28.95
Sport Games		
Manchester Utd	25.53	21.95
Microdrive	20.39	15.95
Microdrive Ext Courses USA	15.27	12.95
World Champ. Boxing Mgr	25.53	21.95
Compendiums		
Arcade 3 Compilation	15.50	12.95
Arcendium	15.28	12.95
Real McCoy	29.95	26.95
Real McCoy 2	29.95	26.95
Winter Box	20.39	15.95
Leisure/Various		
Arcticulate	24.95	22.45
Rhapsody 2	61.95	51.95
Speech	19.95	15.95
Tracker	49.95	41.95
Trivial Pursuit	30.64	25.95
Utilities		
ALPS System	35.71	29.95
Arclight	50.00	42.50
Artisan 2	61.95	51.95
CIS Utilities 1 & 2	17.32	14.75
Creator	45.77	39.95
Euclid	70.00	57.95
Graph Box 2	81.69	69.95
Investigator Rel 2	27.95	23.50
Pro Artisan	105.00	81.95
Render Bender 2	135.00	114.95
Splice	30.00	25.50
Tracer	61.25	51.95
Tween	30.00	25.50
Word Processors		
Interword	34.07	28.95
Protext V5	152.75	129.95
Educational		
Bert Boot	7.95	6.95
Bumper Disc 1	23.95	19.95
Bumper Disc 2	23.95	19.95
Children's Graphics Pack	19.95	17.95
Coffee (9-15yrs)	32.84	29.95
Decorated Alphabet Pack	19.95	17.95
Desktop Folio	105.75	89.95
Farmer Giles	20.39	17.35
Farmer Giles 2	20.39	17.35
Flight Path	32.84	29.95
Freddy Teddy (3-7yrs)	23.44	19.95
Freddy Teddy's Adventure	19.95	17.95
Fun School 2 0-6yrs	20.99	15.95
Fun School 2 6-8yrs	20.99	15.95
Fun School 2 8+yrs	20.99	15.95
Giant Killer	20.39	18.35
Giant Killer Support Disc	17.88	15.95
History Costume Library	19.95	17.95
House of Numbers (6-13yrs)	25.85	21.95
Imagine	39.95	36.95
Let's Spell At Home	25.50	20.50
Let's Spell At the Shops	25.50	20.50
Let's Spell Out & About	25.50	20.50
Letters & Pictures (6-8yrs)	23.50	19.95
Maps & Landscapes (9-14yrs)	25.85	21.95
Maths Pack 1 (5-7yrs)	12.95	10.95
Mental Maths (5-16yrs)	20.39	17.35
Nature Libary	19.95	17.95
Numbers/Pictures (4-6+yrs)	23.50	19.95
Numerator	77.55	77.55
Ollie Octopus Sketchpad	16.39	14.95
Pendown 2	63.45	63.45
Prehistoric Animals Pack	19.95	17.95
Puncman 1&2 (7-13+)	23.50	19.95
Puncman 3&4 (8-14+)	23.50	19.95
Puncman 5, 6, & 7 (8-15+)	23.50	19.95
Revelation	89.30	89.30
Search & Rescue (9-15yrs)	32.84	29.95
Spelling Week By Wk (6-14)	25.85	21.95
Spellbook (4-9yrs)	25.50	21.95
The Art Machine Pack 1 (9+)	35.19	31.95
The Art Machine Pack 2 (9+)	35.19	31.95
Things to do with Numbers	25.50	20.50
Things to do with Words	25.50	20.50
TinyLogo/Tiny Draw (4-9yrs)	35.19	31.95
Tools Graphics Library	29.95	27.95
Turtle's World Tour	19.99	15.95
World Geography Maps Pack	29.95	27.95
World Wildlife Pack	19.95	17.95
Worldscape	19.95	15.95
Languages		
Ansi C (Release 3)	175.08	149.95
Fortran 77 (Release 2)	116.33	98.95
Communications		
ArcComm V2	63.45	63.45
Arcterm 7	79.95	67.95
Desktop Publishing		
Clip Art Set 1	35.19	29.95
Impression 2	198.57	145.95
Impression Junior	105.69	81.95
Ovation	116.33	91.95
Pendown Extra Outline Fnts	21.15	21.15
Joysticks, Peripherals & Miscellaneous hardware		
Arch Games Controller (RTFM)	41.11	36.95
Arch Joystick Interface (Serial P)	28.14	26.95
Clares Micro Mouse	32.00	27.50
Delta Cat Joystick	34.95	31.95
Graphics Enhancer	222.08	195.95
Scan-Light Junior 300/400	222.08	209.95
Scan-Light Junior A3000	233.83	209.95
Scan-Light Senior 300/400	468.83	445.95
Scan-Light Senior A3000	468.83	445.95
Sound Sampler & Midi Card	81.08	74.95
Computer Aided Design		
SolidCAD	149.95	134.95
SolidTOOLS	375.00	337.50
WorraCad	116.33	87.95

(SRP = Suggested Retail Price) All prices include VAT @ 17.5%

This is only a selection of our range of software for the Arch!

Please 'phone or write for our catalogue - **IT'S ABSOLUTELY FREE!**

Software Bargains & Mercury Games

Dept MUA1, C/O Northwood House, North Street, LEEDS LS7 2AA

TEL: 0532 436300 FAX: 0532 423289

This month's special offer for the Arch!

CORRUPTION

Corruption	**Fish!**
~~£30.60~~ Sale £11.95	~~£30.60~~ Sale £11.95

Buy both for only £19.95!

Arch. New Releases!	SRP	SALE
Wrld Champ. Squash	25.53	21.95
Arctist	24.95	22.45
Poizone (Due Sept '91)	19.95	15.95
Kerbang (Due Sept '91)	19.95	15.95
Top Banana	25.99	22.50
Zelanites The Onslaught	24.95	24.95
PC Emulator V1.6	116.33	116.33

Printers

Panasonic KX-P1081	9pin dot matrix	£159.95
Panasonic KX-P1180	9pin dot matrix	£169.95
Panasoinic 1124i	24pin dot matrix	£254.95
Seikosha SP2000	9pin dot matrix	£159.95
Seikosha SL92	24pin dot matrix	£249.95

Prices include VAT, cable & delivery!

(Full specifcations available on request)

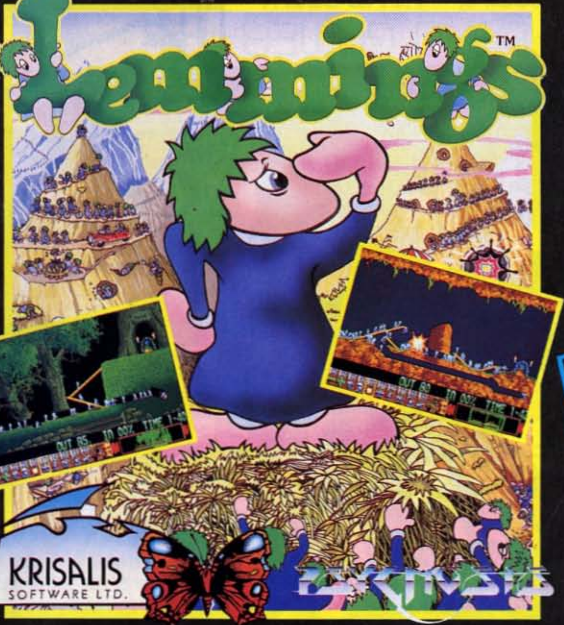
BBC & ELE

Send for our Catalogue!	BBC/ELE	B-Disc	Cpct
A Question of Sport	8.95	10.95	-
Acornsoft Hits 1 or 2 (each)	1.95	8.95	10.50
Arcade Soccer	6.50	8.50	8.95
Castle Quest	5.95	7.95	-
Colossus 4 Chess (40t)	7.95	12.25	12.25
Colossus 4 Bridge(40t)	7.95	12.25	-
E-Type	6.50	9.75	10.50
Elite	9.75	11.25	15.95
Exile	9.75	11.25	15.95
Fun School 2 (0-6 yrs)	9.95	11.95	12.50
Fun School 2 (6-8 yrs)	9.95	11.95	12.50
Fun School 2 (8+ yrs)	9.95	11.95	12.50
Holed Out	8.50	9.75	10.50
Holed Out Extra Crses 1	6.50	7.75	8.50
Holed Out Extra Crses 2	6.50	7.75	8.50
Hostages	7.95	9.95	11.95
Master Break	7.95	9.95	11.95
Micro Power Magic 1 *	5.95	6.95	7.75
Micro Power Magic 2 *	5.95	6.95	7.75
Micro Power Magic 3 *	-	6.95	-
Mini Office 2 * (BBC only)	10.95	13.95	17.95
Mini Office 2 M128 *	-	15.95	-
Nevryon	-	9.75	10.50
Pendown	-	45.43	-
Perplexity	6.95	8.95	10.50
Play it Again Sam 1 to 10 (Each)	6.95	8.95	10.50
Play it Again Sam 11 to 14 (Each)	7.95	9.95	11.95
Play it Again Sam 15	9.95	11.95	15.95
Repton infinity	9.95	11.95	15.95
Sim City	9.95	11.95	15.95
Speech (BBC only)	7.95	9.95	11.95
Superior Collection 1 (BBC only)	6.95	8.95	10.50
Superior Collection 2 (BBC only)	6.95	8.95	10.50
Superior Colection 3 (ele only)	6.95	-	-
Tank Attack (40t)	9.95	11.95	-

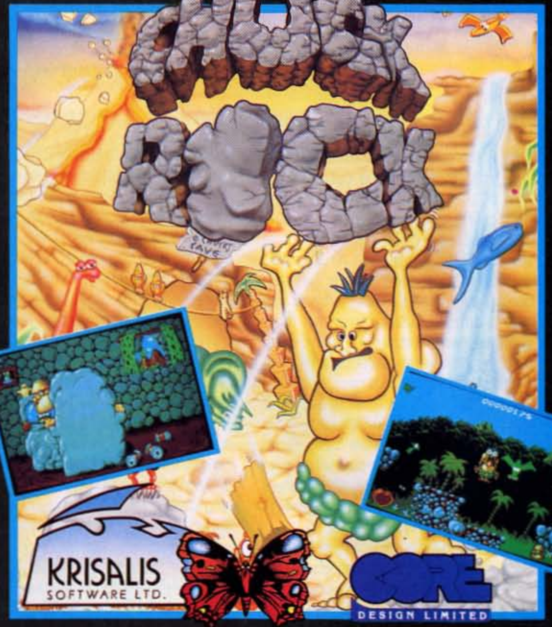
* = Please state 40t or 80 disc

- * Access/Visa Welcome
- * Please add 95p P&P (Europe £2.50, Outside Europe £4.50)
- * All prices include VAT @ 17.5%
- * Goods despatched within 48 hrs, (subject to availability)
- * Educational discount of 30% off SRP (not Sale price) available on most Archimedes software; Offical Order No. or school headed notepaper required - minimum order value £30.00 for invoicing, otherwise cheque with order.

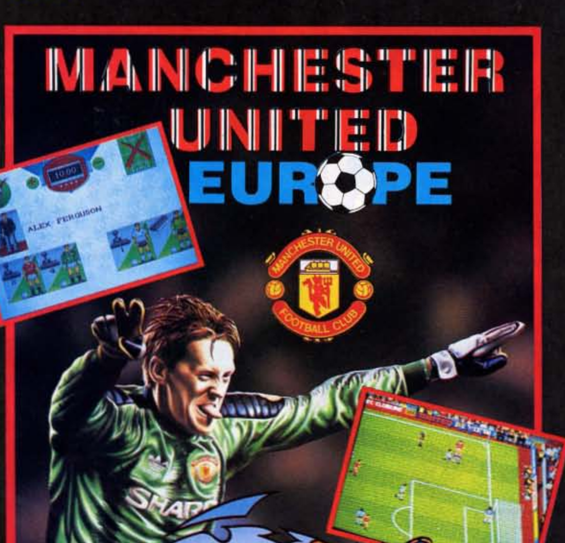
(Prices are correct at the time of going to press, E&OE)



Voted the software industrie's Game of the Year. "Lemmings" by Psygnosis has to be one of the most playable games ever to be released on the unsuspecting public. "Lemmings" the hit title of 1991, now available from Krisalis for the Archimedes and BBC A3000 price £25.99.



From the moment you watch "Chuck Rock's" introduction sequence you know that this product is going to be a bit special. This is why "Chuck Rock" has been licensed by both Sega and Nintendo publishers. All of Core Design's Amiga originality has been retained including the parolex scroll, brought to you by Krisalis for the Archimedes and BBC A3000 price £25.99.



"Manchester United Europe," takes this world famous club into the European arena of club knockout competitions, which includes the European Cup, European Cup Winners Cup, UEFA Cup, European Super Cup and the World Club Championship held each year in Japan. Game features:- 2 player option (using joystick adapter) full goalkeeper control, name of player on the ball, new control method incorporating one touch football and aftertouch, animated substitutions, yellow and red cards, sending off, action replays, 170 club badges, penalty shoot outs, Arcade only option, Management only option or full simulation option. Available for the Archimedes and BBC A3000 price £25.99.

SEE US ON STAND 72
11th - 13th October 1991
BBC ACORN USER
SHOW '91
WEMBLEY · 11TH TO 13TH OCTOBER 1991

£25.99
INCLUDING VAT
EACH

All games compatible with Archimedes & BBC A3000

3 great games making their debut appearance at the BBC Acorn User Show '91

Anyone not attending the show can obtain copies direct by sending a cheque or postal order to Krisalis Software or, telephone your order using your Access or Visa card. You can fax your order giving your credit card details which must include expiry date.

All orders will be dispatched by the 11 October '91 by first class post. Carriage is paid by us in the UK. (Overseas orders add £3.00)

Krisalis Software Ltd., Teque House, Masons Yard,
Downs Row, Moorgate, Rotherham, S60 2HD.
Telephone 0709 372290. Fax 0709 368403

Software SCENE

95%

TOP BANANA

...psychedelic green

IF this game wasn't so fashionable in style it would be out-modishly 60's. However, as peace, love and caring are back in favour – thank goodness – then Top Banana is at the cutting edge. Though dealing with serious issues, the game is fun and doesn't take itself seriously leaving you with a difficult, addictive and a thoroughly superb working of that old blast from the past – the platform game. The T-shirt is pretty good too.

The theme is one of greed and destruction and is, unfortunately for Earth, not too far from the truth. Yet in the belief that love and competent programming can overcome all you must guide our hero through four increasingly difficult and weird worlds.

Graphically it's a mix of Monty Python, Sergeant Pepper and garish psychedic colours. Add to this the noises of the rainforest and other sound effects as you munch your way through the various goodies and you have something that assaults the senses from all angles. Good though the sound is I was pleased to see a quiet and off option.

Starting in the rainforest you must kill bulldozers, chainsaws and suited businessmen with kindness before the rising water level reaches you. Eat as you go or the screen will begin to shake as you become weak from lack of food.

The game boasts three-way parallax scrolling which just adds to the totally weird experience of it all. Do read the manual – strange concept I know – as it does give you some hints. With aching fingers I made my way to the top of the screen only to be cast down amidst a very personal thunder storm – help.

After saving the forest though you can either reassure Greenpeace or take on the hazardous metal city of level two. There are lifts but they are unreliable, and platforms but some are rotten. The water is still rising, but you'll also find hidden pockets of stagnant polluted water – how long can you hold your breath? Mutated metal machines patrol and radioactive waste falls around your ears. Succeed here and you have only one more step on your way to total enlightenment. An increasingly weird level this one – why are there American footballers in a temple? And what are the drops of acid and metal discs which keep attacking. Not to mention the crashed red cars.

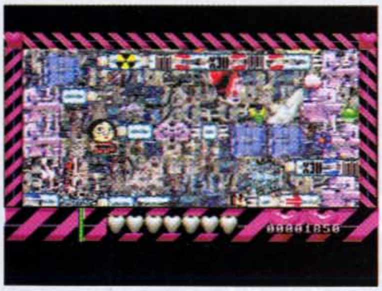
But if you want really strange try level four. Children's clown faces kept attacking me and though warned in the instructions that this is a level of delusion and nightmare, I was still unprepared for something that is very, very strange.

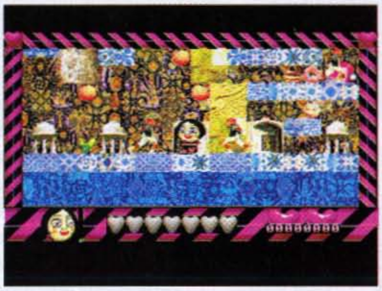
The controls are straightforward, the monsters you meet random and if you are proficient enough you can edit the sprites to customise your own nightmares. The music is particularly good and has been generated in real time using Chaos theory so it changes continuously with a plethora of sample sounds at its disposal.

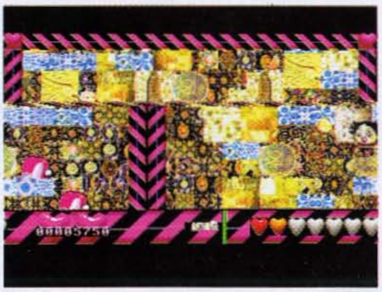
Though a classic platform game, the polish and sheer detail put into this rendition makes it a sure fire winner. The price may be a little on the high side, but you get a T-shirt and I was glad to see that not only are there no useless bits of packaging and the cardboard is all recycled too.

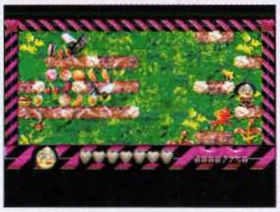
Polythene Pam

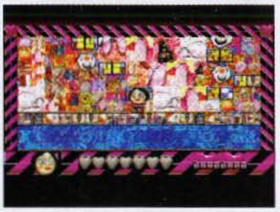
Price: £25.99
Supplier: Hex, PO Box 737, London SE5 SJG
Tel: 071 701 0652
Requirements: BBC A3000 and Archimedes range











Software SCENE

87%

Heart of China

... adventure calls

Price: £39.99
Supplier: Sierra, Unit 2, Technology Centre, Station Road, Theale, Reading, Berks RG7 4AA.
Tel: 0734 303322
Requirements: BBC A3000 or Archimedes with new PC Emulator. Hard disc and 2Mb.

FOLLOWING a quick scan through the introduction, my first impression of Heart of China was that of a slushy Mills and Boon love story – the hunky hero, "Lucky" Jake Masters, winning the heart of pretty young Kate Lomax, a nurse he has been hired to save from her wicked kidnapper, Li Deng.

Recently released by Dynamix which comes under the umbrella of Sierra, Heart of China is described as "a crash landing, globe spanning adventure". The cover for the box looks the part, with a picture of Lucky posing on the dockside at Hong Kong, looking every inch the ace fighter pilot he once was.

After tossing the instructions aside for a few minutes I decided to make up my own mind about this 1930's adventure game.

The most obvious thing that struck me was the quality of the graphics, even in 16 EGA colours, and the superb animation. It is worth bearing in mind that a considerable amount of memory is needed for these effects and a hard disk is a must.

A quick dash through the credits and the scene setting will bring you to the Hong Kong docks, where there are boats bobbing on the calm waters of the harbour and the thriving town stretches along the bay. Sea gulls shriek, waiting for scraps they can scavenge while the debris of Lucky Jake's demolished sampan is forlornly scattered in the harbour.

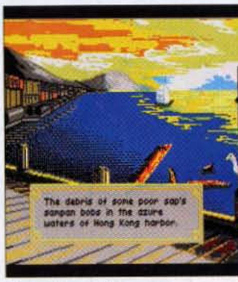
Owing money to millionaire Lomax does not seem to be a good idea, judging by the way the old man treats his debtors, but he does offer Lucky two hundred thousand dollars to save his daughter within three days, of course Lucky has no choice in the matter and reluctantly agrees.

The shattered pieces of the boat are just an indication of the dirty dealing Lomax uses to get his own way, as if his money wasn't enough. Out of the reward money Lomax has offered to Lucky, he will take away twenty thousand dollars for each extra day Lucky takes to save her.

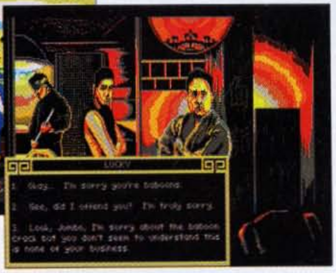
The flying bank notes which occasionally appear fluttering across the screen do not indicate your reward money piling up in your secret Swiss bank account, in fact quite the opposite, the money is flying away due to your lack of speed in rescuing Nurse Kate.

Thought bubbles appear displaying the characters musings which you are able to glean valuable clues from, and, as you work your way around the screen via the keyboard, clicking on an item will give you a full description.

If the pointer passes over a subject and changes shape it usually means there is something worth looking at, or collecting for future use.


The debris of some poor sap's sanpan bobs in the azure waters of Hong Kong harbor.

Seagulls bear gifts



...but dont upset the wildlife

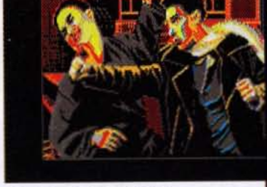
The cursor could change shape for any number of reasons, I would recommend taking note of anything and everything, as something dismissed as unimportant could mean the failure of your campaign.

After searching the dock thoroughly I could see nothing I could possibly want or need and departed via a waiting coolie's rickshaw, It takes you to town and the opportunity of finding a trustworthy partner to assist in the rescue of the fairKate.

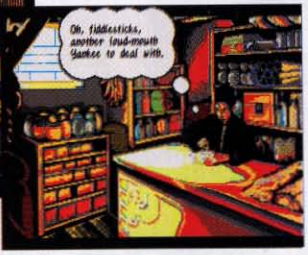
As advised by E. A. Lomax III, you must find Zhao Chi, the only Ninja living in China, to help you with your quest. Chi proves to be somewhat elusive at first, but with a little perseverance and a lot of backchat he will be found, or he'll find Lucky.

You will need to persuade Chi, who is convinced that "arrow–planes" cannot fly, to board your Yankie Eagle and take off for Chengdu, where there is a huge and ancient fortress to explore. Unfortunately it is heavily guarded and there is no way they will let you in without good reason.

To acquire the best possible information you will have to frequently alternate play between the characters, for example when you visit Master Wu, herbalist and document forger extraordinaire, she will not like Lucky's manner and you will have to swap to Chi to get her to talk. The adventures continue through mysterious and exotic lands with various incidents to conquer and problems to solve which done correctly will change Lucky's life and probably Kate's too. Get it wrong and things might not turn out quite as expected.



You'll need some help too



You can save your game at any point and I would recommend saving your position if danger looms so that if the unmentionable should happen you won't have to start at the beginning again.

Try to remember there is more than one way to catch a fish, so to speak, if you can't do something one way, try another.

Both Lucky and Chi have inventories. You can swap the items between them, pick up useful objects or drop things you don't want. You can also give whatever you pick up to either of the inventories, but it may be that only one particular person can use it successfully. HOC has made such a splash on the PC market that it is well worth looking at on the Archimedes. But it is slow to the point of frustration and the keyboard controls – forget using the mouse – are a little eccentric. However if you long for the heroic daring do's of Romancing the Stone or the Indiana Jones movies then this is a must.

The support materials, concept and programming are of the highest standard, and if you can afford the price and the time you'll be rewarded.

Sue McCarthy

TOP BANANA

FREE 100% Cotton T-Shirt with every game
HEX THE POWER FUNKY SAMPLER TOP BANANA GLOBAL RECYCLER

- SAMPLED GRAPHICS
- CYBERMIX SOUND
- RECYCLED PACKING
- EDITABLE SPRITES

Frantic Fruit Fight to Save the Planet

TOP BANANA is a mega-arcade romp in which you use your power of Love to save our Planet from impending ecological disaster and release hidden hoards of succulent riches. Top Banana includes several totally new gaming features.

- ***GRAPHICS*** **- 3 level parallax scrolling with sampled 256 colour video graphics which YOU can edit.**
- ***GAMEPLAY*** **- 4 separate Worlds of juicy addictive Coin-Op action.**
- ***SOUND*** **- Solid sampled cyber-mixed sound. Uses Chaos to generate a groovy soundtrack which continually changes and gives individual atmosphere for each World.**
- ***HARDWARE*** **- 1MB Archimedes and A3000 machines. RTFM Joystick compatible.**
- ***SOFTWEAR*** **- Includes FREE quality loose fit T-Shirt with exclusive design and non-fade print .**

To order Top Banana send a cheque or Postal Order for £25.99 (inc. P&P) payable to HEX addressed to HEX, P.O. Box 737, London SE5 9JG. Credit card holders dial 071 701 0652 for 24hr ordering service. For each extra T-shirt please add £6.99.

HEX

Design Concept

A range of original Outline Fonts for the Archimedes harnessing the power and flexibility of the Acorn Font Manager.

Ainslie
Ainslie.Bold
Beacon
Copper
CELTIC
Flip
Goffik
Katiyo.Bold
Trust
Trust.Solid

Italic versions, and other font families, are also available from our catalogue.

Our fonts are designed on the Archimedes. Although this involves sacrificing PostScript compatibility, this is a small price to pay for the ability to go beyond an over-rated standard.

Prices:
Any one font: £2.50 (Single user licence)
Other fonts of the same family name: £1.50
Site Licence: Twice the single user price.
Carriage on each order: £2.00

Access VISA MasterCard

Design Concept,
30 South Oswald Road,
Edinburgh EH9 2HG
Telephone 031 668 4518

Micro Studio

22 Churchgate St. SOHAM Cambs CB7 5DS Tel. 0353 720433

TRANSPORT

Graphics Library Pack for the Archimedes and BBC A3000

!DRAW Format

Trains .. Boats .. Planes .. Cars .. Trucks and more!

SCIENCE
new
£29.95

£19.95
Childrens

COME AND SEE US AT THE
ACORN USER SHOW
STAND 74

Graphics Packs now include the following

Geography, History, Nature, Wildlife, Business, Science, Engineering, Transport, Desktop Publishing, Humour, Design, Illustration, Leisure.

Please send an SAE for details.

EMR

No.1
For Excellence
In Music Technology

No.1
Stand
Acorn User Show

Don't miss EMR's great show offers on music software and hardware for the BBC and Archimedes - or those amazing demonstrations!

☆

Send for EMR's new Autumn brochure now and we'll include free vouchers for up to £50 worth of EMR software.

EMR Ltd
14 Mount Close
Wickford Essex
SS11 8HG

Music Helpline
☎ 0702 335747

SCSI and IDE Options From The Serial Port

Wouldn't you like to buy a SCSI or IDE system from a company that gives you a wide choice of solutions, honest advice about the best type of card for you and who are always reviewing and improving their customer service? If so you're reading the right advert!

The Serial Port supply the largest and fastest range of cards for the Archimedes - as well as a range of devices including hard drives, tape streamers, magneto-optical and CD-ROM drives.

As well as our **standard 8-bit SCSI cards** we now have a **new 16-bit SCSI card** which has just been launched and can transfer data at rates exceeding 2Mb per second - certainly one of the fastest and definitely the best looking SCSI card on the Archimedes! Our **Turbo Drives** perfectly complement this card with an ultra-low 9ms access time with cache and are covered by a full two year warranty.

Also new to our range is the **Turbo Internal A3000 SCSI Card** - this uses the same components as our 16-bit card but has been designed to fit inside an A3000 giving higher transfer rates than standard internal cards. Another possibility for the A3000 owner is our 'plug in and go' **HardBox** solution - this is simply a box containing any full size card, drive and fan that plugs into the expansion port of the A3000 keeping your internal slot free for other upgrades. Contact us for the latest availability information on these options.

Also, to give you peace of mind, **all** our cards and many of our devices are covered by a **full two year warranty** - we're that confident about the quality and reliability of our products.

SCSI Cards		Standard Drives		Turbo Drives	
8-bit Full Size	£99	45Mb	£200	50Mb	£250
8-bit A3000 Internal	£99	80Mb	£300	100Mb	£450
Turbo A3000 Card	£139	100Mb	£400		
16-bit Full Size Card	£139				

External metal case complete with PSU and fan £79

A3000 HardBox £55

Syquest Removable 42Mb drive complete with PSU, case, fan and one cartridge £499

Sony Magneto-Optical Drive £3800

When a card and any device are bought together all necessary connecting cables will be supplied.

For information on larger drives or other devices such as tape streamers and CD-ROM drives, as well as availability information on our IDE systems, please contact us.

Educational and dealer enquiries welcome

The Serial Port, Burcott Manor, Wells, Somerset BA5 1NH
Tel: 0243 531194 Fax: 0243 531196

MOZAIC madness

James Bonfield presents a frustrating puzzle

MOZAIC Madness is a facinating puzzle game which involves laying many coloured tiles on to a coloured board. There are only three rules;

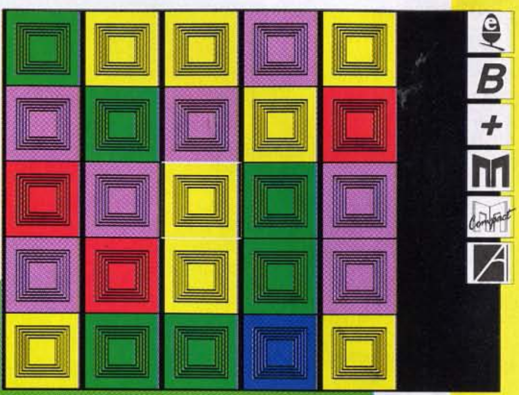
- A tile cannot be placed on another tile
- A tile cannot be placed on a space which is the same colour as the tile.
- A tile cannot be placed so that it will have any neighbours horizontal, vertical or diagonal of the same colour.

The game is over when all the tiles have been dropped on to the board. Full instructions are given in the program.

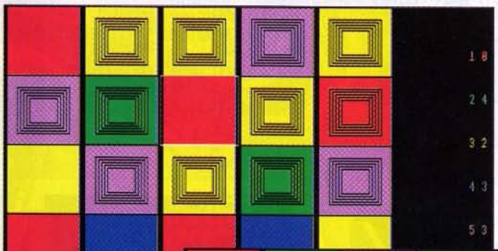
Type in the listing and ensure that you've made no errors using the checksum. Once run the program will ask if you want instructions. After which you must enter the size of the board on which you want to play followed by the difficulty level.

Pressing Escape during the game will return you to the *Do you want instructions?* stage. But when checking that the program works, or when you want to finish just use Shift+Escape.

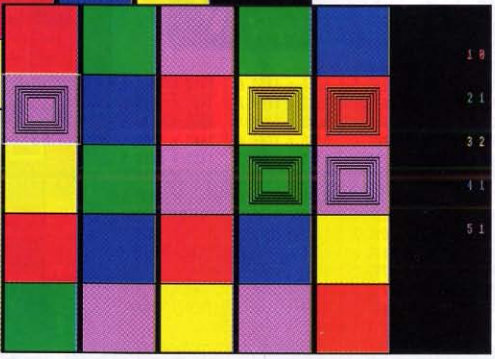
It's best to start with a three by three board at the easiest level, as this provides a good introduction to the puzzle. The two by two grid at the hardest level is an excellent demonstration of how a simple idea for a game with very simple rules can provide a most interesting challenge.



Getting started



Halfway through



No solution here

```
   10 REM Mozaic Madness
   20 REM by James Bonfield
   30 REM (C) The Micro User
   40 maxSize=7
   50 IF PAGE>&8000 maxSize=20:GOTO 110
   60 ON ERROR GOTO100
   70 *TAPE
   80 *SHADOW ON
   90 maxSize=20
  100 *KEY10S%=FALSE|MOLD|MRUN|M
  110 ON ERROR PROCerror
  120 MODE1:VDU23,1,0;0;0;0;
  130 PROCinstructions:PROCsetup
  140 IF PAGE>&8000 MODE12:xx=76 ELSE MO
DE2:xx=16
  150 PROCinit
```

➤

➤

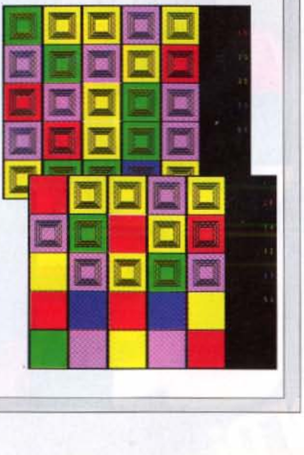
```
  160 PROCdraw_grid
  170 PROCfx(4,1):PROCfx(11,10):PROCfx(1
22,8)
  180 PROCkey:PROCplay_game
  190 FORI=1TO200STEP4:SOUND1,-15,I,1:SO
UND2,-15,I+55,1:SOUND3,-15,I*2.56,1:NEXT
  200 MODE7
  210 PROCcongratulations
  220 RUN
  230 :
  240 DEF PROCdraw_grid
  250 FOR X=1 TO grid
  260 FOR Y=1 TO grid
  270 grid(X,Y)=RND(maxCol)
  280 PROCplot_tile(X,Y,FALSE)
  290 NEXT:NEXT:ENDPROC
  300 :
  310 DEF PROCplot_tile(X,Y,covered)
  320 sqrSiz=1020/grid
  330 MOVE (X-1)*sqrSiz+8,(Y-1)*sqrSiz+4
  340 GCOL 0,(grid(X,Y)MOD128)
  350 MOVE X*sqrSiz-8,(Y-1)*sqrSiz+4
  360 PLOT 85,X*sqrSiz-8,Y*sqrSiz-4
  370 MOVE (X-1)*sqrSiz+8,Y*sqrSiz-4
  380 PLOT 85,(X-1)*sqrSiz+8,(Y-1)*sqrSi
z+4
  390 IF covered ENDPROC
  400 FOR size=sqrSiz/6 TO sqrSiz/3 STEP
 8
  410 PROCplot_box(X,Y,0,size):NEXT:ENDP
ROC
  420 :
  430 DEF PROCplay_game
  440 X=grid DIV2+1:Y=grid DIV2+1
  450 REPEAT
  460 PROCplot_box(X,Y,7,0)
  470 OX=X:OY=Y:PROCscan_keys
  480 PROCplot_box(OX,OY,0,0)
  490 IF won ENDPROC
  500 UNTIL FALSE
  510 :
  520 DEF PROCplot_box(X,Y,colour,shrink
)
  530 MOVE (X-1)*sqrSiz+shrink,(Y-1)*sqr
Siz+shrink
  540 GCOL 0,colour
  550 DRAW X*sqrSiz-shrink,(Y-1)*sqrSiz+
shrink
  560 DRAW X*sqrSiz-shrink,Y*sqrSiz-shri
nk
  570 DRAW (X-1)*sqrSiz+shrink,Y*sqrSiz-
shrink
  580 DRAW (X-1)*sqrSiz+shrink,(Y-1)*sqr
Siz+shrink
  590 ENDPROC
  600 :
  610 DEF PROCscan_keys
  620 K%=INSTR("ZzXx/?:;1122334455667788
",GET$)
  630 K%=(K%+1)/2
  640 IF K%=1 IF X>1 X=X-1
  650 IF K%=2 IF X<grid X=X+1
  660 IF K%=3 IF Y>1 Y=Y-1
  670 IF K%=4 IF Y<grid Y=Y+1
  680 K%=K%-4:IF K%>=1 IF K%<=maxCol PRO
Clay_tile(K%)
  690 ENDPROC
  700 :
  710 DEFPROClay_tile(K)*FX15
  720 IF grid(X,Y)>=100 OR C(K)=0 SOUND
1,-15,10,10:ENDPROC
  730 IF (grid(X,Y)MOD128)=K OR (grid(X-
1,Y)MOD128)=K OR (grid(X+1,Y)MOD128)=K O
R (grid(X,Y-1)MOD128)=K OR (grid(X,Y+1)M
OD128)=K SOUND1,-15,10,10:ENDPROC
  740 IF (grid(X-1,Y-1)MOD128)=K OR (gri
d(X+1,Y-1)MOD128)=K OR (grid(X-1,Y+1)MOD
128)=K OR (grid(X+1,Y+1)MOD128)=K SOUND1
,-15,10,10:ENDPROC
  750 grid(X,Y)=K+128:PROCplot_tile(X,Y,
TRUE)
  760 SOUND1,-15,200,5:C(K)=C(K)-1
  770 PROCcheck_won
  780 PROCkey:ENDPROC
  790 :
  800 DEF PROCkey
  810 FOR I=1 TO maxCol:COLOUR I
  820 PRINTTAB(xx,I*4)SPC(4)
  830 PRINTTAB(xx,I*4);I" ";C(I)
  840 NEXT:ENDPROC
  850 :
  860 DEF PROCinit:won=FALSE:CLS
  870 DIMC(maxCol),grid(grid+1,grid+1)
  880 FOR I=1 TO maxCol:C(I)=grid^2 DIV
maxCol:NEXT
  890 total=C(1)*maxCol:lowest=C(1)
  900 IF total<>grid^2 REPEAT:temp=RND(5
):UNTIL C(temp)=lowest:C(temp)=C(temp)+1
:total=total+1:GOTO900
  910 VDU23,1,0;0;0;0;:ENDPROC
  920 :
  930 DEF PROCsetup:COLOUR 1
  940 REPEAT CLS:PRINT"grid (2-";maxSize
") : ";:INPUT""grid
  950 UNTIL grid>=2 AND grid<=maxSize
  960 PRINT'"DIFFICULTY LEVEL (3-EASY TO
 1-HARD) : ";
  970 REPEAT maxCol=GET-48:UNTIL maxCol>
0 AND maxCol <4
  980 maxCol=maxCol+4:ENDPROC
  990 :
 1000 DEF PROCcheck_won
 1010 total=0:FOR temp=1 TO maxCol:total
=total+C(temp):NEXT
 1020 IF total=0 won=TRUE ELSE won=FALSE
 1030 ENDPROC
 1040 :
 1050 DEF PROCerror
 1060 IF ERR=17 IF NOTINKEY-1 RUN
 1070 PROCfx(4,0):PROCfx(12,0)
 1080 REPORT:PRINT" at line ";ERL:END
```

SUBSCRIBE NOW!
If you prefer to save the wear and tear on your fingers you'll find this listing – together with all the others from this issue – on this month's disc, sent free if you subscribe to *The Micro User.*

```
1090 :
 1100 DEF PROCcongratulations
 1110 PRINTTAB(9,5)CHR$136CHR$141CHR$132
"CONGRATULATIONS"
 1120 PRINTTAB(9,6)CHR$136CHR$141CHR$132
"CONGRATULATIONS"
 1130 PRINT'''CHR$131"Well done!! You ha
ve solved this puzzle"'CHR$131"Now try a
 different size grid."
 1140 PRINTTAB(8,20)CHR$129"PRESS SPACE
TO CONTINUE"
 1150 REPEAT:X=GET:UNTILX=32
 1160 ENDPROC
 1170 :
 1180 DEF PROCinstructions:PROCfx(11,0)
 1190 PRINT"Do you want instructions?(Y
or N)"
 1200 K%=INSTR("Yy",GET$):IF K%=0 ENDPRO
C
 1210 PROCfx(200,1)
 1220 PROCdisplay1:PROCspace
 1230 PROCdisplay2:PROCspace
 1240 PROCfx(13,4):PROCfx(200,0)
 1250 ENDPROC
 1260 :
 1270 DEF PROCdisplay1
 1280 COLOUR2:PRINTTAB(14,1)"TILES PUZZL
E"
 1290 COLOUR3
 1300 PRINT''"    This puzzle starts wit
h a coloured  grid. You are given colour
ed tiles whichmust be placed on the grid
."
 1310 PRINT''"    The grid can be filled
 in any order and the tiles can be place
d in any      sequence, subject to the f
ollowing threerules."
 1320 COLOUR 1:PRINT''"1: ";:COLOUR 3:PR
INT"A tile cannot be placed on a square
    of its own colour."
 1330 COLOUR 1:PRINT'"2: ";:COLOUR 3:PRI
NT"A tile cannot be placed next to a
   sqaure of its own colour, either side
   by side or diagonally."
 1340 COLOUR 1:PRINT'"3: ";:COLOUR 3:PRI
NT"Only one tile may be placed on each
   square of the grid."
 1350 PRINT''"    Note that only the top
 (exposed)    colour is counted."
 1360 ENDPROC
 1370 :
 1380 DEF PROCdisplay2:CLS
 1390 COLOUR 2:PRINTTAB(18,1)"KEYS"
 1400 COLOUR 1:PRINT'''SPC(12)"LEFT";SPC
(10)"'Z'"
 1410 PRINT'SPC(12)"RIGHT";SPC(9)"'X'"
 1420 PRINT'SPC(12)"UP";SPC(12)"':'"
 1430 PRINT'SPC(12)"DOWN";SPC(10)"'/'"
 1440 COLOUR 3:PRINT'''"    To place a t
ile, move the flashing  cursor to the re
quired tile. Then press a number from 1
to 5 corresponding with the desired colo
ur."
 1450 PRINT''"    The game is completed
when all of   the tiles have been placed
."
 1460 PRINT''"    If you get stuck then
press <ESCAPE>to start again."
 1470 ENDPROC
 1480 :
 1490 DEF PROCspace:COLOUR 2
 1500 PRINTTAB(9,30)"PRESS SPACE TO CONT
INUE"
 1510 REPEAT UNTIL GET=32:ENDPROC
 1520 :
 1530 DEFPROCfx(A%,X%)LOCALY%:CALL&FFF4:
ENDPROC
```

Get it right ✓

```
  10 =    0 0
  20 =    0 0
  30 =    0 0
  40 = 1B5D D
  50 = E5A7 5
  60 = 1A7C B
  70 = CD93 3
  80 =  F20 1
  90 = 37FC 1
 100 = 7E8B 0
 110 = 9621 2
 120 = 6864 F
 130 = 317A 8
 140 = 8F97 3
 150 = DEBB 3
 160 = 6B35 E
 170 = 2E6A 3
 180 = 2771 D
 190 = 72DE 4
 200 = 8AFC 0
 210 = 74BB 2

 220 = 7E36 2
 230 = 9719 3
 240 = 94F7 C
 250 =  2F6 B
 260 = 6DB3 5
 270 = 7059 C
 280 = 5E38 8
 290 = BB05 F
 300 = 9719 1
 310 = B24C 6
 320 = 65F3 5
 330 = E604 D
 340 = D0BD 1
 350 = D9E9 6
 360 = BDB9 5
 370 = 6BD9 2
 380 = F957 C
 390 = DF23 1
 400 = 45D5 8
 410 = 35AA B
 420 = 9719 7

 430 = BE36 3
 440 =  1B2 D
 450 = BFBA A
 460 = A57C 8
 470 = F487 F
 480 = F577 6
 490 = A842 D
 500 = 226C 8
 510 = 9719 4
 520 = 7BFF 5
 530 = D4FA 0
 540 = E43F E
 550 = F548 1
 560 = 9C53 C
 570 = CC8B 3
 580 = 4C46 E
 590 = ED0F E
 600 = 9719 0
 610 = B6C7 7
 620 = A109 6
 630 = EC1D A

 640 = 2329 2
 650 = 860D 1
 660 = DFAD 2
 670 = D8A2 3
 680 = 9E5B 3
 690 = ED0F 1
 700 = 9719 7
 710 = AB49 D
 720 = 43EE C
 730 = 7085 0
 740 =  1CF C
 750 = 1BAC C
 760 = D77E 4
 770 = 676B 1
 780 = 4B80 F
 790 = 9719 4
 800 = E09D F
 810 = 9515 4
 820 = 7EA0 D
 830 = 7BAA 3
 840 = E531 8

 850 = 9719 1
 860 = C9FB D
 870 = 1E7D 9
 880 = DB02 6
 890 = 1994 C
 900 = DF0A 2
 910 =  B0F A
 920 = 9719 1
 930 = 70AD F
 940 = ECC8 2
 950 = 9F99 E
 960 = A5A7 B
 970 =   B6 F
 980 =  900 D
 990 = 9719 5
1000 = 98A9 0
1010 = 9CA6 4
1020 = 527B 4
1030 = ED0F 6
1040 = 9719 7
1050 = 72B4 5

1060 = 490B E
1070 = 6EE2 5
1080 = FA32 9
1090 = 9719 B
1100 = 573F 3
1110 = C8BA E
1120 = 4AE0 B
1130 = 92A7 7
1140 = 4A3B 1
1150 = 8DDD F
1160 = ED0F 4
1170 = 9719 7
1180 = 61C1 D
1190 = DCC1 5
1200 = 76D5 C
1210 = E09C 9
1220 = 1FE1 F
1230 = D794 C
1240 = E252 E
1250 = ED0F 5
1260 = 9719 C

1270 = FA30 6
1280 = E6B9 2
1290 = C90B F
1300 = FCEE 4
1310 =  99C 2
1320 = 3DE5 1
1330 = 4738 A
1340 = 4A13 B
1350 = AD77 9
1360 = ED0F 0
1370 = 9719 8
1380 =  341 3
1390 = 3C45 5
1400 = E3AE F

1410 = F5A0 3
1420 = CB5E C
1430 = 5F33 3
1440 = 115E 4
1450 = 82AC 5
1460 = B168 3
1470 = ED0F A
1480 = 9719 5
1490 = CB70 1
1500 =  E3D 7
1510 = BF3A B
1520 = 9719 F
1530 = 6D8A C
```



305/310 Memory - 4Mb £170

High quality upgrade to 4Mb RAM. Requires some ability in soldering or ask your dealer to fit. MEMC1a not necessary. Will not obstruct other upgrades (ARM3, larger OS-Roms, MEMC1a, external floppy buffer) as our board lives under the disk drive bridge. Low-power consuming, fully buffered, eight-chip design avoids overheating for reliable operation. Full instructions included.

A3000 Memory - 1Mb £55 - 4Mb £140

Easy-to-fit, plug-in, upgrade to 2 or 4Mb of RAM. Quality sockets enable future user-upgrading to 4Mb by simple replacement of the eight chips, at a cost of £130. Compatible with other internal upgrades. Low power eight-chip design avoids overheating, ensuring reliable operation. Instructions included.

A400/1 Memory - £35 per Mb

Upgrade to 2 or 4Mb using our easy-to-fit memory packs, with full instructions.

SCSI Hard Drives at Sensible Prices

Internal quiet and reliable Fujitsu and Seagate preformatted drives, complete with mounting kit, cables and fast 8-bit SCSI podule for 300/400 series.

45Mb - £299 85Mb - £399 135Mb - £499 180Mb - £599

External drives for the A3000 are available with mini-podule but will need our stylish metal case with integral switched PSU and fan for an additional £95.

Quality Assurance - everything we sell is fully tested before despatch.

10% educational discount on memory upgrades. Carriage free within EEC.
Please make cheques payable to SIMTEC. VAT to be added to UK orders.

SIMTEC
ELECTRONICS

Avondale Drive, Tarleton,
Preston, Lancs. PR4 6AX
Tel: (0772) 812863

AVOID BROMLEY!

THE DATA STORE
Popped out to the ACORN USER SHOW
Back on Thursday!

The 1991 Acorn User Show takes place at Wembley Conference Centre from 11th to 13th October and we'll be on stand 113 with a wide selection of products and some new Data Store Software releases! BUT whilst we're there, we are **closing our Bromley showroom for refitting.** In fact, we'll probably be closed from *Wednesday 9th till Wednesday 16th October inclusive*, but just in case we manage to reopen more quickly, we'll be leaving our answerphone on to give the latest information, so **please ring before you come.** Once we're back, you'll be able to enjoy our famous service and hospitality and our large range of products for all Acorn computer systems in an even more delightful environment - we look forward to seeing you then! Until 8th October, you'll just have to put up with the *old* carpet...

THE DATA STORE

6 Chatterton Road, Bromley, Kent BR2 9QN.
Tel: 081-460 8991 Fax: 081-313 0400

UNIVERSAL TELETEXT ADAPTOR

Universal Teletext Adaptor

Reviewed in Acorn User, June 1991

- RISC-OS version multitasks.
- Computer controlled tuning.
- Download and save pages.
- User programmable via SWIs & OS calls.
- Unique composite video & audio output.
- High performance T.V. front end.
- Fully mains powered unit in metal case.
- Upgrades available for existing users.

The ARC/A3000 version contains many powerful features making it very easy to use, i.e. point and click at page numbers. SAE for details.

Prices include:–

User port lead SATS Software User notes **BBC B** **£77.00**	Parallel port lead TTX V1.08 S/ware User notes **A3000/ARC** **£77.00**	Podule socket lead TTX V2.11 S/ware User notes **A3000/ARC** **£77.00**

A3000 MEMORY UPGRADES

- Low power design, only 8 chips.
- 1 Meg upgradeable to 4 Meg.
- Easy to fit, just plugs in. +
- Screw fixed for reliability.
- PCB size only 175 x 50mm.

1 MEG £70.00 inc VAT & P+P
(Gives 2 Meg total memory)

4 MEG £160.00 inc VAT & P+P
(Gives 4 Meg total memory)

NOTE: Memory prices fluctuate, please phone for our best quote.

SAE for full details

ARM 3 PROCESSOR

- Cache operation at 25 MHz.
- RISCOS !Armspeed software.
- 3 + times speed increase.
- DIY plug in design.
- Fits A300/400 series.

£299.00 Including VAT + P&P

A305/310 4 MEG MEMORY UPGRADE

- Low power 8 chip design.
- DIY fitting, just plug in.
- Accepts our ARM 3 processor.

£260.00 Including VAT + P&P

SAE for details of above products

Ground Control

DEPT MU10.
GROUND CONTROL
ALFREDA AVENUE
HULLBRIDGE
ESSEX SS5 6LT

ALL PRICES INCLUDE VAT AND P&P
MAIL/TELEPHONE ORDERS ONLY PLEASE
EDUCATIONAL AND GOVERNMENT ORDERS WELCOME

TEL: 0702 230324

Thinking of upgrading your A310?

Our memory upgrade is . . .

Reliable – We have been adding extra RAM to 300 series computers for nearly two years. In that time, not a single upgrade which we have fitted has developed a fault and needed repair!
Upgradable – Larger RISC OS ROMs can easily be installed later by the user. Simply plug in the new chips and change some links.
Compatible – The upgrade works with ARM3s and of course hard discs too. The MEMC1a upgrade is also included, worth over £80. 8-chip design ensures no overheating problems.
Easy to use – There are no special commands to remember. Your A310 has a full 4096K (4Mb) of RAM available, just like a 440/1.

For £375 including VAT you get; Collection of your machine, fitting and testing of the 4Mb RAM upgrade (with MEMC1a), and return of your computer, 3-day turnaround. Eg a computer collected on Monday is usually back with you on Wednesday.

Full warranty and a no-quibble money back guarantee.

Send for our free information sheet. Then decide.
Phone for educational and quantity discounts.

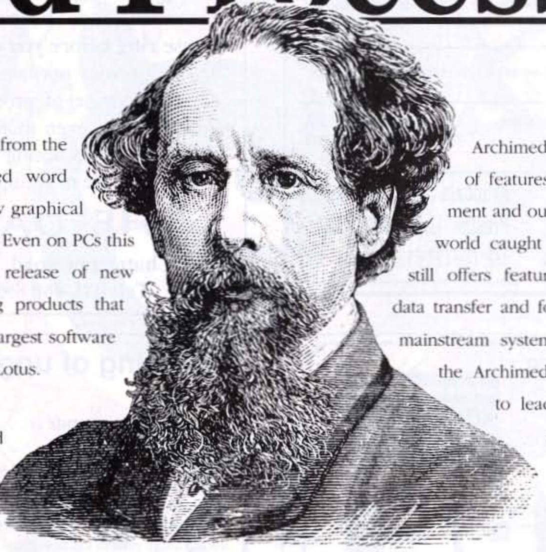
A3000 – Only 8 RAM chips – low power consumption
– User fittable – no soldering required
– Available as a "bare board" (ie sockets, but no RAM)
– **4MB – £175 2MB – £65 Bare board – £30**

All prices include VAT

Further information and price list from:

IFEL, 36 Upland Drive, Derriford, Plymouth PL6 6BD
(0752) 847286

The New Generation of Word Processors



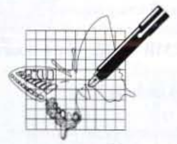
This image (an old engraving of Charles Dickens) was captured using Scan-Light Junior at 400 dpi. This scanner is ideal for black and white line-art or pictures such as this.

Word processing is evolving from the traditional character based word processors of the past to the new graphical based word processors of today. Even on PCs this evolution is evident with the release of new graphic based word processing products that run under Windows 3 from the largest software houses Microsoft, Wordstar and Lotus.

The new generation of word processors all have certain features in common. They all allow free use of different text sizes and styles. They all offer a range of graphic manipulating tools and, of course, they all operate under a windowing environment.

While most PC users are only just coming to grips with the new style of word processing, Archimedes owners have been able to word processes like this for 18 months With the introduction of Impression. Archimedes owners have had the use of features like a good WIMP environment and outline fonts (long before the PC world caught on). And today the machine still offers features such as inter-application data transfer and font anti-aliasing that no other mainstream system can provide, ensuring that the Archimedes architecture will continue to lead the way. Quite simply, on the Archimedes, you get tomorrows PC architecture today.

With the release of the new greyscale scanner, Computer Concepts can now supply all the components for Archimedes owners to put together the ultimate word processing system. Our hardware and software products support all three stages of document production, from capturing pictures, through word processing and document creation to printing.

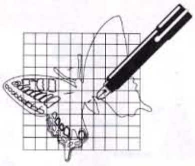


create

capture

print

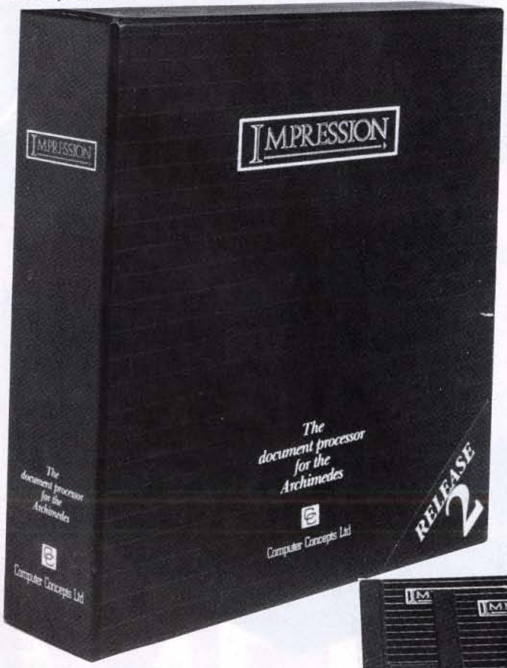
IMPRESSION II



create

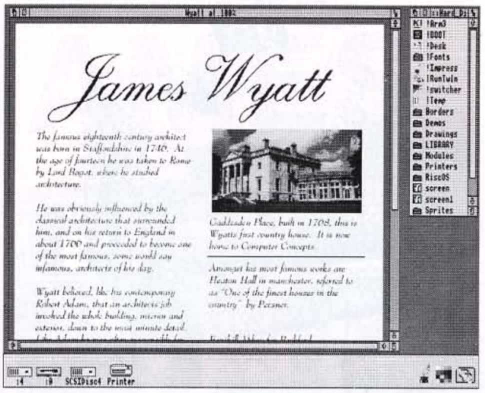
IMPRESSION Junior

The key part of any system is the word processor. With over 10,000 users (not including the hundreds of educational site-licences installed) Impression Junior and Impression II have become an industry standard for the Archimedes, and it is still growing in popularity. It is probably no co-incidence that the new word processors for other machines are adopting many Impression-like features since it is only logical that, as machines become more powerful, they begin to integrate desk-top-publishing facilities with traditional word processing. Impression is simply the most efficient, compact, fastest product in its class, able to handle the simplest word processing jobs as well as the most complex desk-top-publishing work. It is the only word processor designed to print using either the native character mode of the printer (ideal for text only word processing and dot matrix printers) or using the RISC OS printer drivers for top quality, full page graphics and text. Imagine the freedom of near typeset quality type - any face, any size, any position on the page, with the ability to place diagrams or pictures wherever desired. Impression offers that freedom - perhaps the ultimate evolution of the word processor.


IMPRESSION
The document processor for the Archimedes
Computer Concepts Ltd
RELEASE 2
IMPRESSION
The document processor for the Archimedes
Computer Concepts Ltd

Impression Junior offers all the key Impression features. Built-in SpellMaster spelling checker, full word processing and DTP abilities, outline fancy font and character font editing, full RISC OS compatibility drives RISC OS printer drivers. It is a small compact program ideally suited for the smaller machine.

Impression Junior £89.95+VAT (£105.69 inc)


Wyatt at 100%
::Hard_Disc4
!Arm3
!BOOT
!Desk
!Fonts
!Impress
!RunTwin
!switcher
!Temp
Borders
Demos
Drawings
LIBRARY
Modules
Printers
RiscOS
screen
screen1
Sprites
:4
:0
SCSIDisc4
Printer

James Wyatt

The famous eighteenth century architect was born in Staffordshire in 1746. At the age of fourteen he was taken to Rome by Lord Bagot, where he studied architecture.

He was obviously influenced by the classical architecture that surrounded him, and on his return to England in about 1766 and proceeded to become one of the most famous, some would say infamous, architects of his day.

Wyatt believed, like his contemporary Robert Adam, that an architects job involved the whole building, interior and exterior, down to the most minute detail.

Gaddesden Place, built in 1768, this is Wyatts first country house. It is now home to Computer Concepts.

Amongst his most famous works are Heaton Hall in manchester, referred to as "One of the finest houses in the country" by Pevsner.

What you see on screen is always an exact representation of the final printed page, including fonts, columns and graphics.

$$J_n(x) = \frac{x^n}{2^n n!} \sum_{s=0}^{\infty} \frac{1}{s!(n+1)^s} \left(-\frac{1}{4}x^2\right)^s$$

If your word processing requirements include any equations or formulae then our Equasor product integrates with Impression to allow equations to be built up graphically, then just dropped into the Impression document where required.

Impression II is able to handle longer or more complex documents. Enhanced DTP abilities such as instant graphic rotation to any angle, Drawfile frame borders, and guide frames. It also offers unique features for long word processed documents such as contents and index generation, unlimited document length (not RAM limited), styles, in-line graphics etc.

Impression II £169+VAT (£198.57 inc)

IMPRESSION II

Once the pictures and text have been processed and arranged as required, you need to be able to print them to the highest possible quality in the shortest possible time. Laser printers provide the quality but have traditionally been slow and expensive. The LaserDirect range of printers offers not only the highest quality printing available (to 600 dpi) but also offers by far the fastest printing available on the Archimedes and at a lower cost than traditional lasers.

LaserDirect Qume. 6 pages per minute 300 dpi. (2Mbyte machine required.)

LaserDirect Qume £999+VAT (£1173.82 inc. Postage extra)

Direct drive laser printers are not a new idea. Apple Mac users have been able to buy direct drive printers for their computers for some time, but while these printers are low cost, they have the reputation of being slow. Here again Archimedes owners win because their machines have the necessary processing power to eliminate the speed problem, and the operating system facilities (such as outline fonts) to ensure that what you see on screen is really exactly what you will get on the printed page. LaserDirect printers offer print speeds of 5 to 10 times that of a typical LaserJet, at a lower cost and can also offer 600 dpi printing for a third of the cost of such printers for other machines. Indeed, so significant have been the benefits, direct drive lasers have now all but eliminated traditional laser printers from the Archimedes market, with the LaserDirect range being the most popular laser printers with Archimedes owners.

Integrated solutions

By using the Computer Concepts software and hardware products with the advanced technology of the Archimedes it is possible to create what must surely be the ultimate word and document processing system. A system that allows high quality half-tone pictures to be captured and incorporated into documents, that integrates word processing and desktop-publishing and, finally, outputs top quality laser printed pages.

All Computer Concepts products are available direct from Computer Concepts or from all reputable dealers. More detailed brochures are available for most of our products.

LaserDirect HiRes. 8 pages per minute and 300 or 600 dpi. (4Mbytes recommended for 600 dpi.)

LaserDirect HiRes8 £1495+VAT (£1756.62 inc. Postage extra)

Computer Concepts Ltd

Gaddesden Place
Hemel Hempstead
Herts HP2 6EX
Tel 0442 63933 Fax 0442 231632

E&OE.
All trademarks acknowledged
Educational discounts available

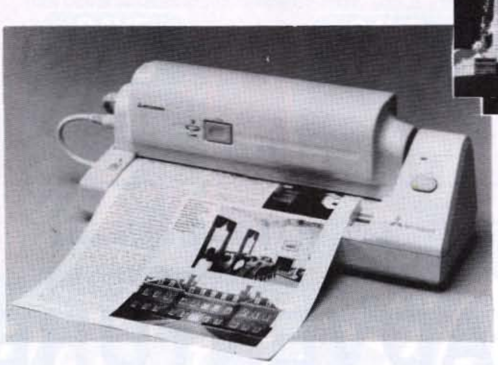
capture

While the Archimedes is powerful enough and flexible enough to handle graphics with supreme ease, this is only useful if it is equally easy to input graphics. The Scan-Light family of image scanners offers a range of capabilities and prices to suit all requirements.

There are three members of the Scan-Light family of image scanners. They are supplied with interface board and simple-to-use software. (Versions are available to fit internally in the A3000). And thanks to direct data exchange, once a picture has been scanned, it can be dropped directly into an Impression document (or other applications) without having to bother with filenames or having to save, then re-load as would be necessary in other systems.

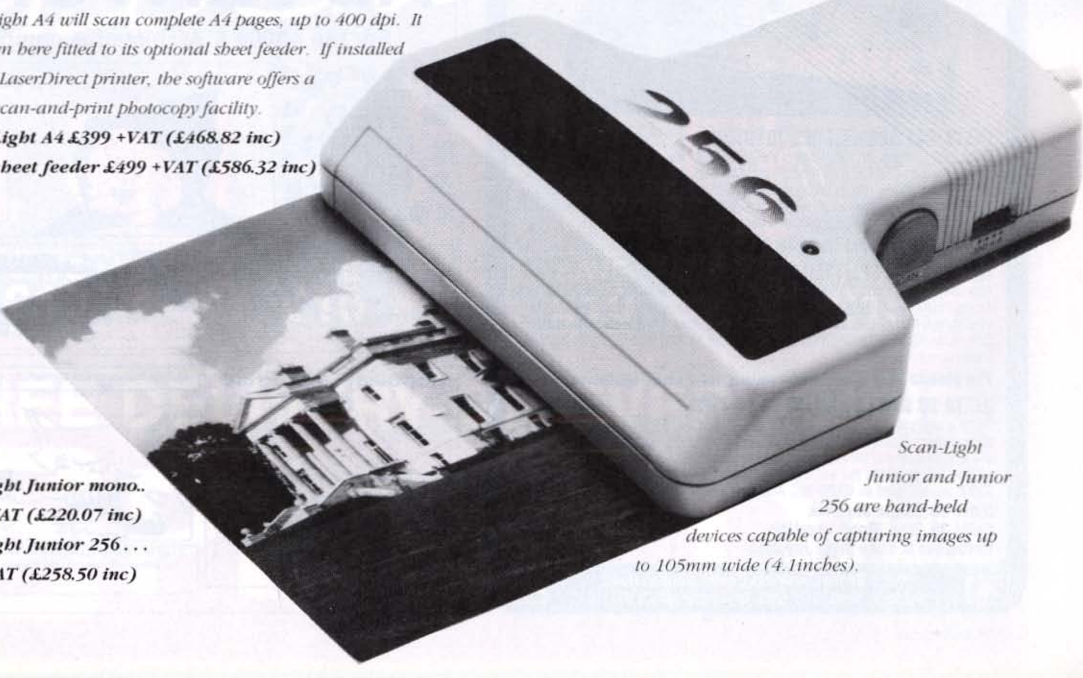
The Scan-Light software includes many unique features such as instant rotation of the scanned image to any angle, image sampling to produce true grey-level images from black and white scanners, full grey-map control to alter contrast brightness etc. Over the last 18 months the Scan-Light series has become the most popular available with all types of users - home users, professional, and educational.

This image was captured from a print using the new greyscale Scan-Light Junior 256. This is able to capture, display and reproduce stunning quality half-tone photograhs, although it can also scan black and white images at up to 400 dpi.



Scan-Light A4 will scan complete A4 pages, up to 400 dpi. It is shown here fitted to its optional sheet feeder. If installed with a LaserDirect printer, the software offers a quick scan-and-print photocopy facility.

Scan-Light A4 £399 +VAT (£468.82 inc)
With sheet feeder £499 +VAT (£586.32 inc)



Scan-Light Junior and Junior 256 are hand-held devices capable of capturing images up to 105mm wide (4.1inches).

Scan-Light Junior mono..
£189+VAT (£220.07 inc)
Scan-Light Junior 256 . . .
£220+VAT (£258.50 inc)

Desktop Folio

For Archimedes and A3000

Not just a desktop publisher...

Choose Desktop Folio, the versatile word processor, desktop and interactive publisher in one. Suitable for home or school work for all ages, from primary level to adult. Perfect for professional quality newsletters, reports, letters, posters, illustrated stories and much more.

- Easy to use for younger users, versatile enough for the experienced.
- 200 colour pictures to illustrate work.
- Accepts pictures and text from other software such as Paint, Edit or Draw.
- Choice of fonts and sample page layouts for professional design.
- Easy-to-read documentation and design ideas.
- Ready-to-use Theme Packs of extra pictures and designs are available to support Desktop Folio.

Ring 0945 63441 for a leaflet with details of licence versions or order your standalone copy now.

esm
EDUCATIONAL SOFTWARE PUBLISHERS

To order your copy

Private customers: please send cash with order. Schools: the goods will be sent on credit upon receipt of order attached to official letter head. P&P is FREE on this order but please add 17.5% VAT to total.
Send to: ESM, Dept 10, Duke St, Wisbech, Cambs PE13 2AE.

Please send me .... copies of Desktop Folio (standalone) @ £90 each.

Postcode ____________ Telephone ____________

Name ____________ Position ____________

Address ____________

____________ Signed ____________

VOLTMACE

DELTA-CAT ARCHIMEDES JOYSTICK

The lowest cost and most versatile of the joysticks for the Archimedes. Needs no interface – just plugs into the mouse port. With no software changes it will immediately run any mouse driven software. With specially written software it can be made to act as an analogue joystick or a digital joystick. All good software should have this joystick as an option where relevant.

The Delta Cat costs just £34.95 inclusive.

MOUSE PORT SPLITTER BOX

Almost a necessity on an A3000 to save keep lifting the computer up to change from mouse to Delta-Cat. The Splitter Box has two mouse sockets on it and a switch to select which socket is in use. Can also be used for other items such as trackballs. Even on an A300/400 series it can pay for itself by saving damage to your keyboard socket or mouse plug.

The Mouse Port Splitter Box retails for £19.95 inclusive.

DELTA 3B SINGLE AND DELTA 3B TWIN

The true analogue joystick for either the BBC B, BBC Master, or Archimedes range of computers. Accessed by Basic Adval commands. The Delta 3B series joysticks will plug straight into the Analogue Port of a BBC B or Master. To work on an A300/400 Archimedes you will need a backplane and I/O podule. To work on an A3000 you will need an A3000 BBC Analogue + User Port Module.

Delta 3B Single Joystick	**£16.95**
Delta 3B Twin (Dual) Joystick	**£24.95**
Deltabase B Yoke Style Joystick	**£34.95**

Unit 9, Bondor Business Centre, London Road,
Baldock, Herts, SG7 6NG. Telephone (0462) 894410

VISA

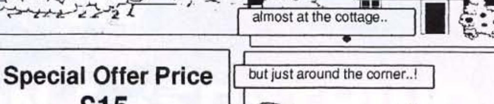
Selective Software presents

An educational

ADVENTURE

For the A3000 & Archimedes computers

LITTLE RED RIDING HOOD
I'm off to see Grandma
for ages 5 to 8

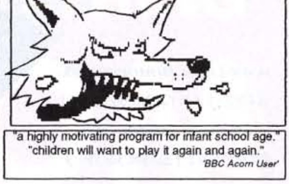


along the way she makes lots of friends
almost at the cottage..

Special Offer Price
£15

VISA Access

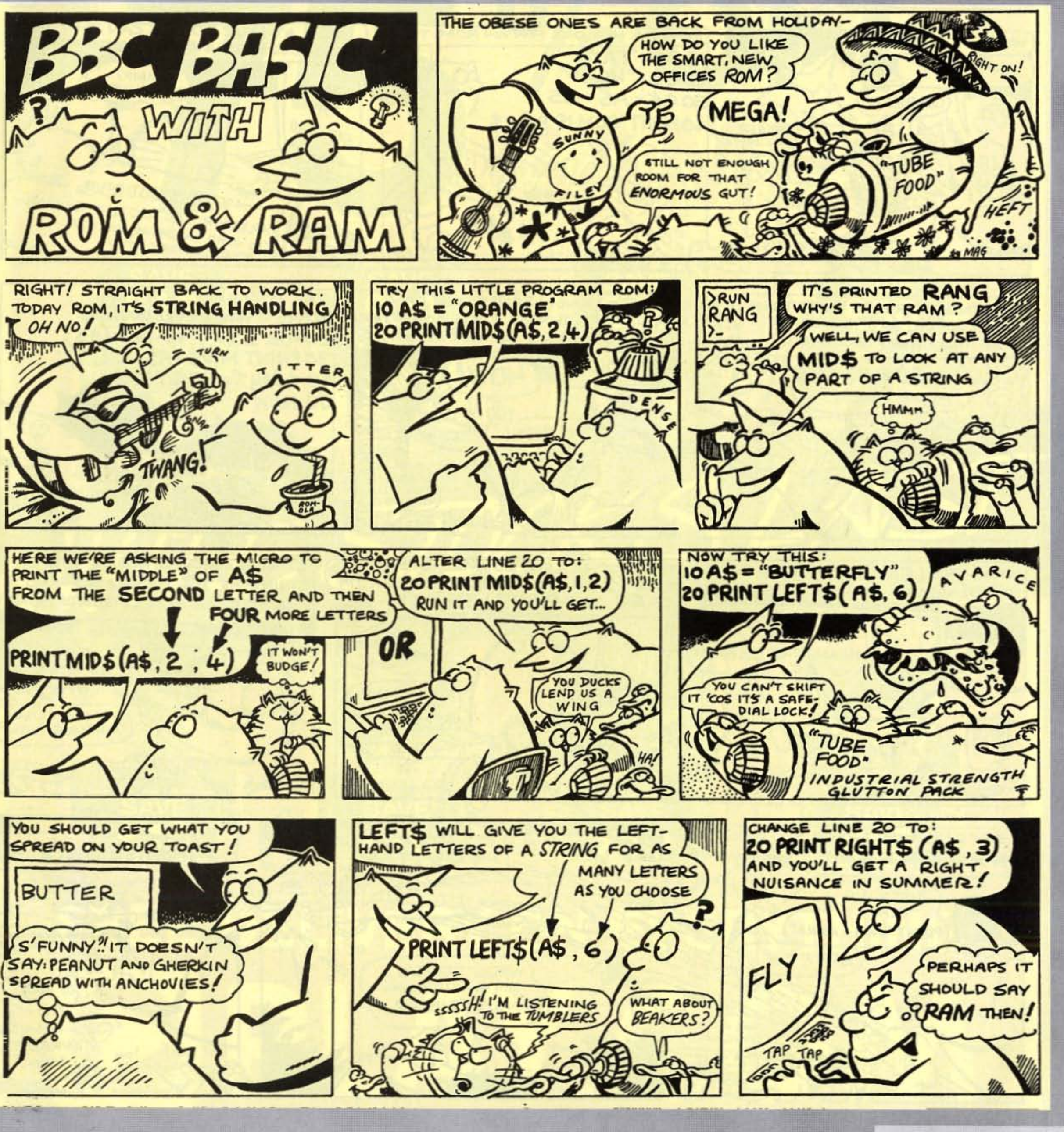
SELECTIVE SOFTWARE,
64 Brooks Road,
STREET,
Somerset BA16 0PP
Tel. (0458) 43079

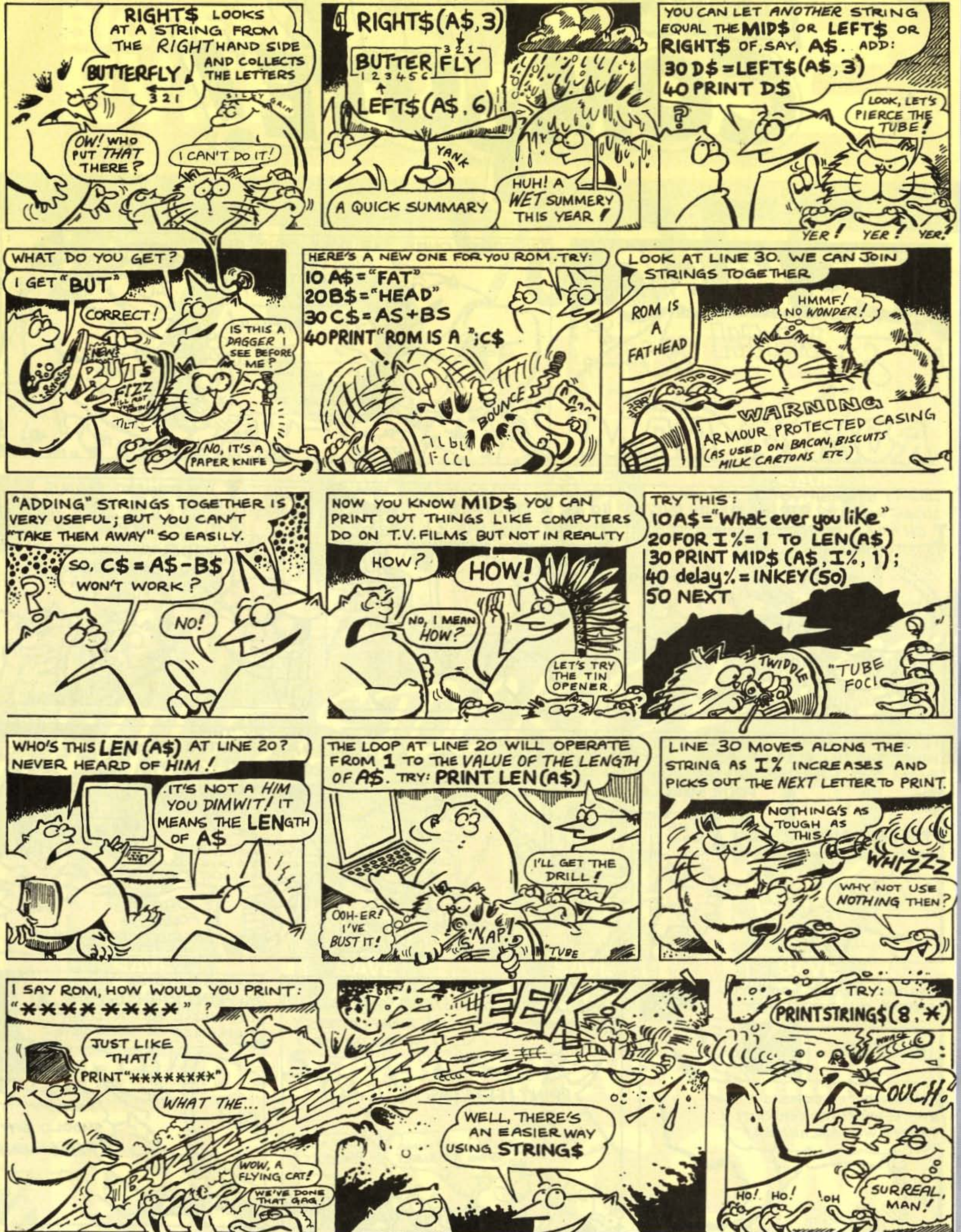


but just around the corner..!

"a highly motivating program for infant school age."
"children will want to play it again and again."
'BBC Acorn User'

LET'S COMPUTE!


BBC BASIC WITH ROM & RAM
THE OBESE ONES ARE BACK FROM HOLIDAY-
HOW DO YOU LIKE THE SMART, NEW OFFICES ROM?
MEGA!
RIGHT ON!
STILL NOT ENOUGH ROOM FOR THAT ENORMOUS GUT!
SUNNY FILEY
"TUBE FOOD"
HEFT
MAG
RIGHT! STRAIGHT BACK TO WORK. TODAY ROM, IT'S STRING HANDLING
OH NO!
TURN
TITTER
TWANG!
ROM-OLA
TRY THIS LITTLE PROGRAM ROM: 10 A$ = "ORANGE" 20 PRINT MID$(A$,2,4)
DENSE
>RUN RANG >_
IT'S PRINTED RANG WHY'S THAT RAM?
WELL, WE CAN USE MID$ TO LOOK AT ANY PART OF A STRING
HMMM
HERE WE'RE ASKING THE MICRO TO PRINT THE "MIDDLE" OF A$ FROM THE SECOND LETTER AND THEN FOUR MORE LETTERS
PRINT MID$(A$, 2 , 4)
IT WON'T BUDGE!
ALTER LINE 20 TO: 20 PRINT MID$(A$,1,2) RUN IT AND YOU'LL GET...
OR
YOU DUCKS LEND US A WING
HA!
NOW TRY THIS: 10 A$ = "BUTTERFLY" 20 PRINT LEFT$(A$, 6)
AVARICE
YOU CAN'T SHIFT IT 'COS IT'S A SAFE-DIAL LOCK!
"TUBE FOOD" INDUSTRIAL STRENGTH GLUTTON PACK
YOU SHOULD GET WHAT YOU SPREAD ON YOUR TOAST!
BUTTER
S'FUNNY?! IT DOESN'T SAY: PEANUT AND GHERKIN SPREAD WITH ANCHOVIES!
LEFT$ WILL GIVE YOU THE LEFT-HAND LETTERS OF A STRING FOR AS MANY LETTERS AS YOU CHOOSE
PRINT LEFT$(A$, 6)
SSSSSH! I'M LISTENING TO THE TUMBLERS
WHAT ABOUT BEAKERS?
CHANGE LINE 20 TO: 20 PRINT RIGHT$ (A$, 3) AND YOU'LL GET A RIGHT NUISANCE IN SUMMER!
FLY
PERHAPS IT SHOULD SAY RAM THEN!
TAP TAP


RIGHT$ LOOKS AT A STRING FROM THE RIGHT HAND SIDE AND COLLECTS THE LETTERS
BUTTERFLY
321
OW! WHO PUT THAT THERE?
I CAN'T DO IT!
RIGHT$(A$,3)
BUTTER FLY
321
123456
LEFT$(A$,6)
YANK
A QUICK SUMMARY
HUH! A WET SUMMERY THIS YEAR!
YOU CAN LET ANOTHER STRING EQUAL THE MID$ OR LEFT$ OR RIGHT$ OF, SAY, A$. ADD:

```
30 D$ =LEFT$(A$,3)
40 PRINT D$
```

LOOK, LET'S PIERCE THE TUBE!
YER! YER! YER!
WHAT DO YOU GET?
I GET "BUT"
CORRECT!
NEW! BUT'S FIZZ
TILT
IS THIS A DAGGER I SEE BEFORE ME?
NO, IT'S A PAPER KNIFE
HERE'S A NEW ONE FOR YOU ROM. TRY:

```
10 A$="FAT"
20B$="HEAD"
30 C$=AS+BS
40PRINT"ROM IS A ";C$
```

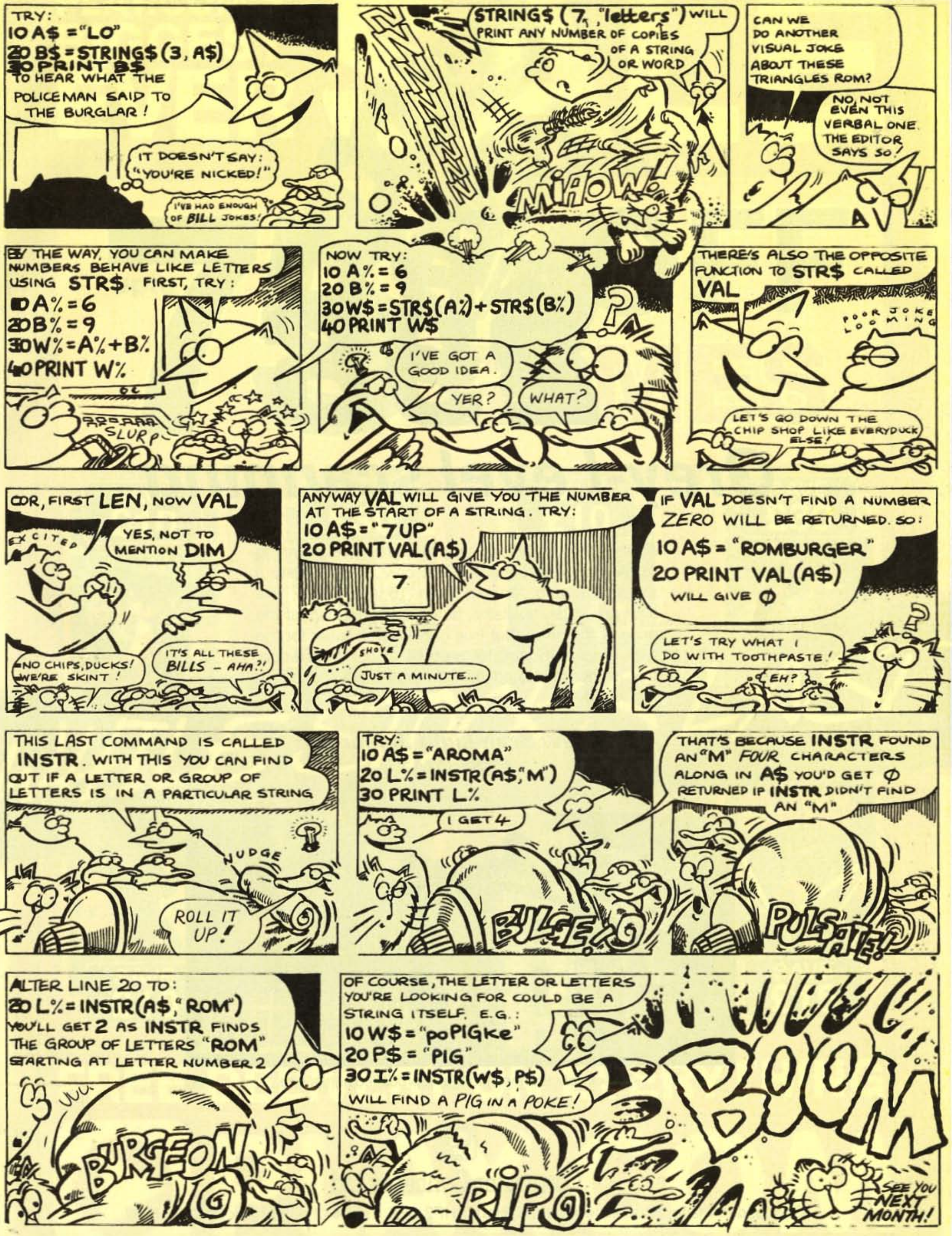
BOUNCE
LOOK AT LINE 30. WE CAN JOIN STRINGS TOGETHER
ROM IS A FATHEAD
HMMF! NO WONDER!
WARNING
ARMOUR PROTECTED CASING (AS USED ON BACON, BISCUITS MILK CARTONS ETC)
"ADDING" STRINGS TOGETHER IS VERY USEFUL; BUT YOU CAN'T "TAKE THEM AWAY" SO EASILY.
SO, C$=A$-B$ WON'T WORK?
NO!
NOW YOU KNOW MID$ YOU CAN PRINT OUT THINGS LIKE COMPUTERS DO ON T.V. FILMS BUT NOT IN REALITY
HOW?
HOW!
NO, I MEAN HOW?
LET'S TRY THE TIN OPENER.
TRY THIS:

```
10A$="What ever you like"
20FOR I%= 1 To LEN(A$)
30 PRINT MID$ (A$,I%,1);
40 delay%=INKEY(50)
50 NEXT
```

TWIDDLE
"TUBE FOCI
WHO'S THIS LEN(A$) AT LINE 20? NEVER HEARD OF HIM!
IT'S NOT A HIM YOU DIMWIT! IT MEANS THE LENGTH OF A$
THE LOOP AT LINE 20 WILL OPERATE FROM 1 TO THE VALUE OF THE LENGTH OF A$. TRY: PRINT LEN(A$)
I'LL GET THE DRILL!
OOH-ER! I'VE BUST IT!
SNAP!
TUBE
LINE 30 MOVES ALONG THE STRING AS I% INCREASES AND PICKS OUT THE NEXT LETTER TO PRINT.
NOTHING'S AS TOUGH AS THIS!
WHIZZZ
WHY NOT USE NOTHING THEN?
I SAY ROM, HOW WOULD YOU PRINT: "**** ****"?
JUST LIKE THAT! PRINT"********"
WHAT THE...
EEK!
ZZZZ
BUZZZ
WOW, A FLYING CAT!
WE'VE DONE THAT GAG!
WELL, THERE'S AN EASIER WAY USING STRING$
TRY:

```
PRINTSTRING$(8,"*")
```

WHACK
OUCH!
HO! HO! HO!
SURREAL, MAN!

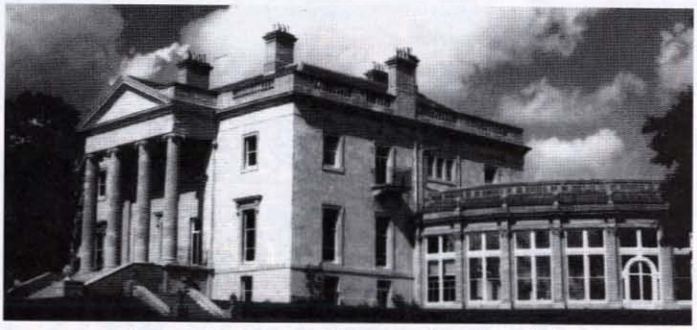

TRY: 10 A$ = "LO" 20 B$ = STRING$ (3, A$) 30 PRINT B$ TO HEAR WHAT THE POLICEMAN SAID TO THE BURGLAR!
IT DOESN'T SAY: "YOU'RE NICKED!"
I'VE HAD ENOUGH OF BILL JOKES!
STRING$ (7, "letters") WILL PRINT ANY NUMBER OF COPIES OF A STRING OR WORD
MIAOW!
CAN WE DO ANOTHER VISUAL JOKE ABOUT THESE TRIANGLES ROM?
NO, NOT EVEN THIS VERBAL ONE. THE EDITOR SAYS SO!
BY THE WAY, YOU CAN MAKE NUMBERS BEHAVE LIKE LETTERS USING STR$. FIRST, TRY: 10 A% = 6 20 B% = 9 30 W% = A% + B% 40 PRINT W%
RRRRRRR SLURP
NOW TRY: 10 A% = 6 20 B% = 9 30 W$ = STR$(A%) + STR$(B%) 40 PRINT W$
?
I'VE GOT A GOOD IDEA.
YER?
WHAT?
THERE'S ALSO THE OPPOSITE FUNCTION TO STR$ CALLED VAL
POOR JOKE LOOMING
LET'S GO DOWN THE CHIP SHOP LIKE EVERYDUCK ELSE!
COR, FIRST LEN, NOW VAL
EXCITED
YES, NOT TO MENTION DIM
NO CHIPS, DUCKS! WE'RE SKINT!
IT'S ALL THESE BILLS - AHA?!
ANYWAY VAL WILL GIVE YOU THE NUMBER AT THE START OF A STRING. TRY: 10 A$ = "7UP" 20 PRINT VAL(A$)
7
SHOVE
JUST A MINUTE...
IF VAL DOESN'T FIND A NUMBER ZERO WILL BE RETURNED. SO: 10 A$ = "ROMBURGER" 20 PRINT VAL(A$) WILL GIVE 0
?
LET'S TRY WHAT I DO WITH TOOTHPASTE!
EH?
THIS LAST COMMAND IS CALLED INSTR. WITH THIS YOU CAN FIND OUT IF A LETTER OR GROUP OF LETTERS IS IN A PARTICULAR STRING
NUDGE
ROLL IT UP!
TRY: 10 A$ = "AROMA" 20 L% = INSTR(A$,"M") 30 PRINT L%
I GET 4
BULGE
THAT'S BECAUSE INSTR FOUND AN "M" FOUR CHARACTERS ALONG IN A$ YOU'D GET 0 RETURNED IF INSTR DIDN'T FIND AN "M"
PULSATE!
ALTER LINE 20 TO: 20 L% = INSTR(A$,"ROM") YOU'LL GET 2 AS INSTR FINDS THE GROUP OF LETTERS "ROM" STARTING AT LETTER NUMBER 2
BURGEON
OF COURSE, THE LETTER OR LETTERS YOU'RE LOOKING FOR COULD BE A STRING ITSELF. E.G.: 10 W$ = "poPIGke" 20 P$ = "PIG" 30 I% = INSTR(W$, P$) WILL FIND A PIG IN A POKE!
RIP
BOOM
SEE YOU NEXT MONTH!

256

Grey-Level scanning

At last, photographic quality, true grey-level scanning for Archimedes owners. Not only is the quality a significant step forward from 16 grey-levels, the best previously available, but it costs around half the price of the only other true grey-level scanner for the Archimedes. In fact, to the best of our knowledge, this is the lowest priced true grey-scale scanner in the world.

The new Scan-Light Junior 256 -
£220 +VAT

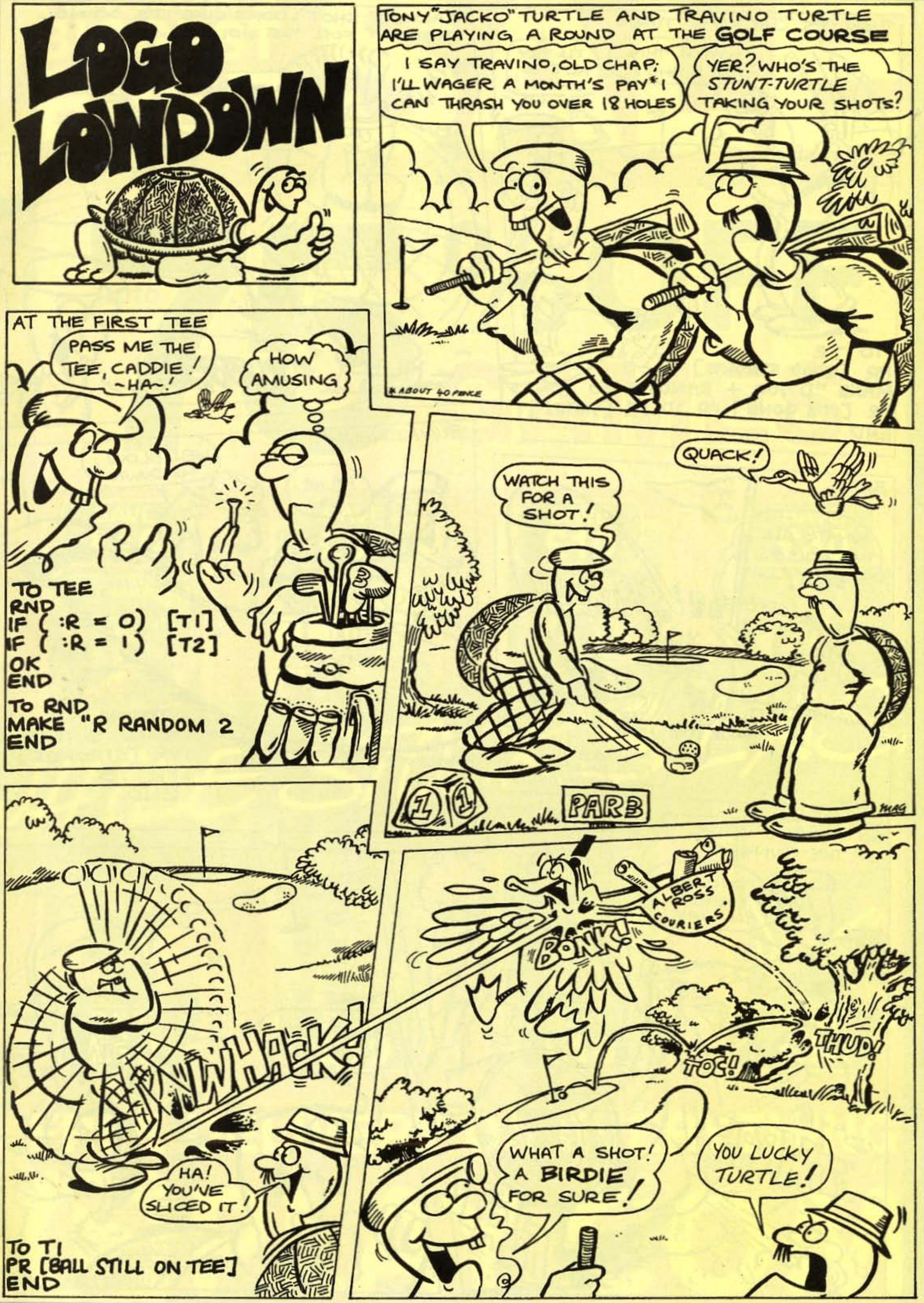


An example scanned picture, reproduced actual size.

Computer Concepts Ltd

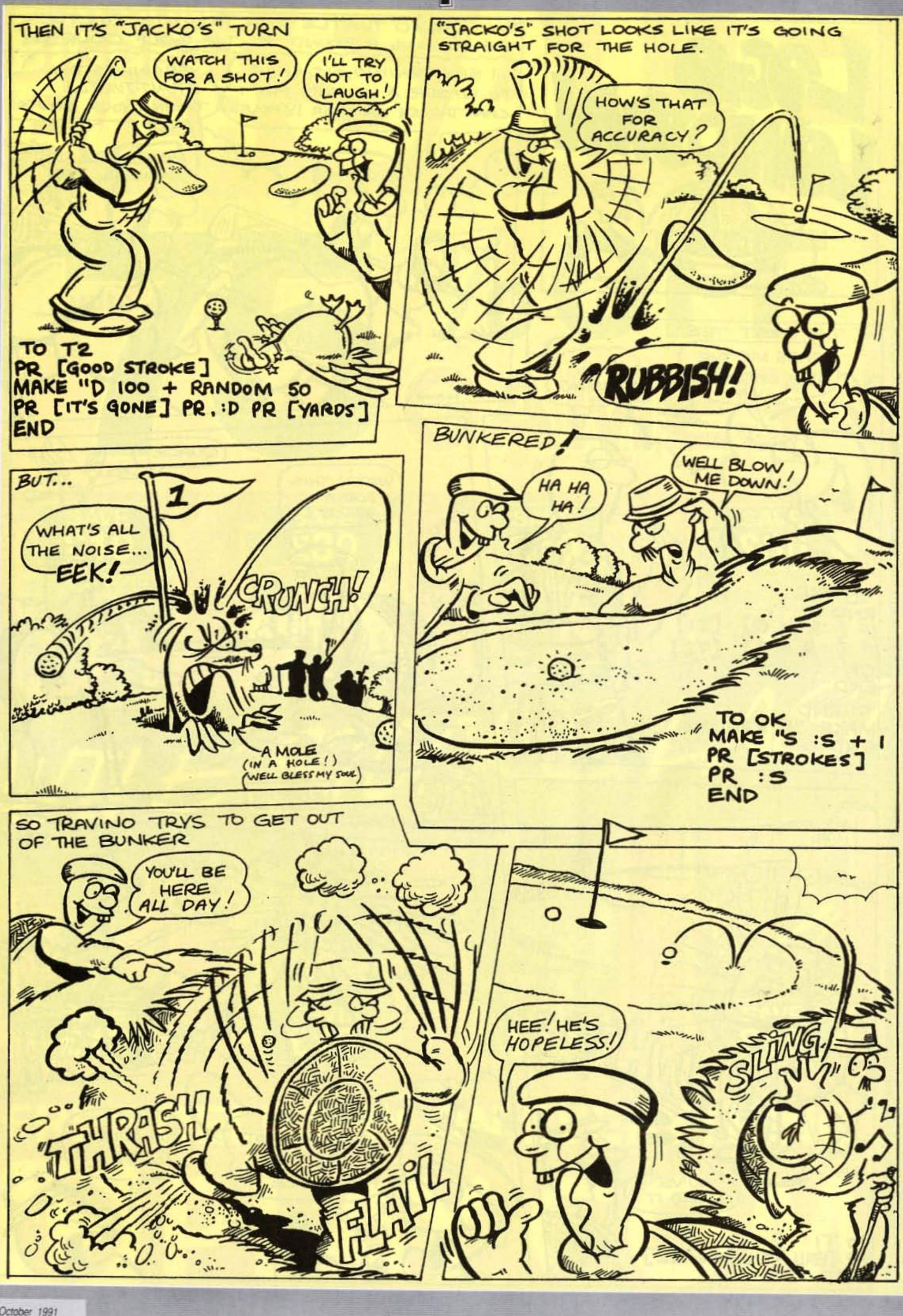
Gaddesden Place, Hemel Hempstead, Herts, HP2 6EX Tel 0442 63933 Fax 0442 231632

LOGO LOWDOWN


TONY "JACKO" TURTLE AND TRAVINO TURTLE ARE PLAYING A ROUND AT THE GOLF COURSE
I SAY TRAVINO, OLD CHAP; I'LL WAGER A MONTH'S PAY* I CAN THRASH YOU OVER 18 HOLES
YER? WHO'S THE STUNT-TURTLE TAKING YOUR SHOTS?
* ABOUT 40 PENCE
AT THE FIRST TEE
PASS ME THE TEE, CADDIE! ~HA~!
HOW AMUSING
QUACK!
WATCH THIS FOR A SHOT!
1 1
PAR 3
MAG
WHACK!
HA! YOU'VE SLICED IT!
ALBERT ROSS COURIERS
BONK!
TOC!
THUD!
WHAT A SHOT! A BIRDIE FOR SURE!
YOU LUCKY TURTLE!

```
TO TEE
RND
IF ( :R = 0)  [T1]
IF ( :R = 1)  [T2]
OK
END
TO RND
MAKE "R RANDOM 2
END
```

```
TO T1
PR [BALL STILL ON TEE]
END
```



```
TO T2
PR [GOOD STROKE]
MAKE "D 100 + RANDOM 50
PR [IT'S GONE] PR :D PR [YARDS]
END
```

```
TO OK
MAKE "S :S + 1
PR [STROKES]
PR :S
END
```

THEN IT'S "JACKO'S" TURN
WATCH THIS FOR A SHOT!
I'LL TRY NOT TO LAUGH!
"JACKO'S" SHOT LOOKS LIKE IT'S GOING STRAIGHT FOR THE HOLE.
HOW'S THAT FOR ACCURACY?
RUBBISH!
BUT...
1
WHAT'S ALL THE NOISE... EEK!
CRUNCH!
A MOLE (IN A HOLE!) (WELL BLESS MY SOUL)
BUNKERED!
HA HA HA!
WELL BLOW ME DOWN!
SO TRAVINO TRYS TO GET OUT OF THE BUNKER
YOU'LL BE HERE ALL DAY!
THRASH
FLAIL
HEE! HE'S HOPELESS!
SLING

Want a dirt cheap Archimedes Computer?...

...don't come to us!

However, we can offer you...

- Expert advice on the best Archimedes hardware and software for your needs
- Fast, courteous mail order service, once you have decided what you want to buy
- After sales service from people who know what they are talking about
- A magazine which we publish, called "Archive", to keep you up-to-date
- Special discounts for Archive subscribers on both hardware and software

Why not give us a call and talk to Paul or Adrian?

...Remember, price isn't everything!

Norwich Computer Services

96a Vauxhall Street, Norwich NR2 2SD. Phone 0603-766592. Fax -764011

Tel: 0305 822753
Fax: 0305 860483

Earth from Space?

or

Space from Earth?

!Orrery **(as reviewed in this issue)**
£95.00 ex VAT

BRITISH EDUCATION AND TRAINING TECHNOLOGY BETT '90
GOLD AWARD:
SPACETECH
WEATHER SATELLITE STATION.

BRITISH EDUCATION AND TRAINING TECHNOLOGY BETT '91
HIGHLY RECOMMENDED:
SPACETECH
!ORRERY

Please write or telephone for a complete description of our range of resources, including weather satellite equipment and space-science books posters videos etc.

See us at the Acorn User Show

Ask about our exciting NEW *FAXSCAN* product

spacetech
Space Science Resources

21 West Wools, Portland, Dorset. DT5 2EA

10 High Density
2MB Double sided
Floppy Discs

PRICE INCLUDES VAT & 1st CLASS UK POSTAGE & PACKING **£10.95**

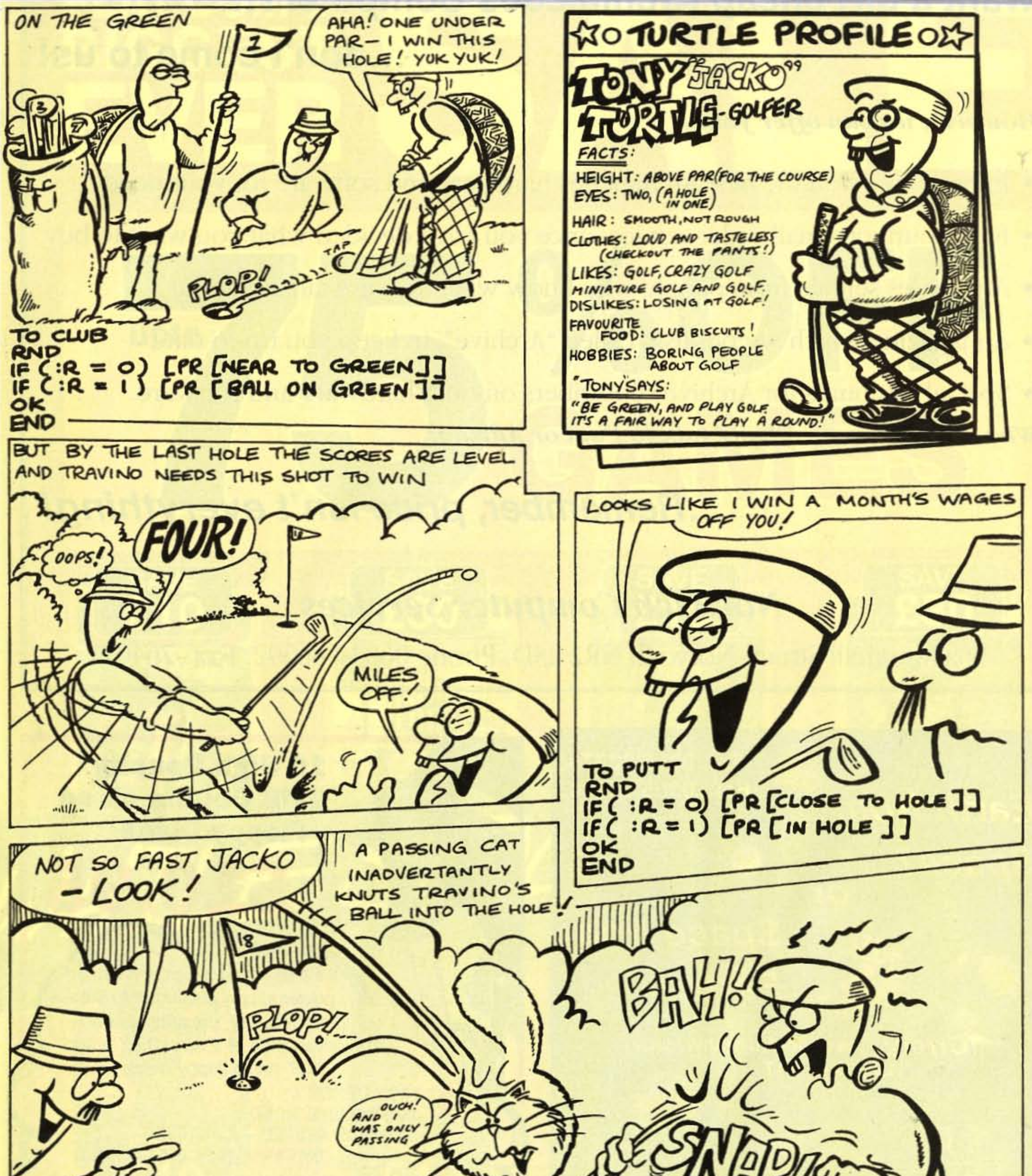
RW Electronics, a major power supply distributor to the computer industry, presents a new — exclusive range of 'Power Disc' brand 3.5" micro floppy discs

- HIGH DENSITY
- **2MB** DOUBLE SIDED
- SURFACE TESTED — CERTIFIED BY RW 100% ERROR FREE
- 135 TPI
- STAINLESS STEEL SHUTTER
- 10 DISCS BUBBLE WRAPPED PER BOX
- COMPLETE WITH SELF STICK IDENTITY LABELS

VISA
Access

VOLUME ORDERS & DUPLICATOR ENQUIRIES WELCOME

RW **ROBERTS WARR ELECTRONICS LIMITED**
PO BOX 2 · HONITON · DEVON · EX14 0NB
TELEPHONE: (040484) 648/649 FAX: (040484) 575


ON THE GREEN
AHA! ONE UNDER PAR – I WIN THIS HOLE! YUK YUK!
1
TAP
PLOP!
BUT BY THE LAST HOLE THE SCORES ARE LEVEL AND TRAVINO NEEDS THIS SHOT TO WIN
OOPS!
FOUR!
MILES OFF!
LOOKS LIKE I WIN A MONTH'S WAGES OFF YOU!
NOT SO FAST JACKO – LOOK!
A PASSING CAT INADVERTANTLY KNUTS TRAVINO'S BALL INTO THE HOLE!
18
PLOP!
OUCH! AND I WAS ONLY PASSING
BAH!
SNAP!

☆○ TURTLE PROFILE ○☆

TONY "JACKO" TURTLE - GOLFER

FACTS:

HEIGHT: ABOVE PAR (FOR THE COURSE)
EYES: TWO, (A HOLE IN ONE)
HAIR: SMOOTH, NOT ROUGH
CLOTHES: LOUD AND TASTELESS (CHECKOUT THE PANTS!)
LIKES: GOLF, CRAZY GOLF MINIATURE GOLF AND GOLF.
DISLIKES: LOSING AT GOLF!
FAVOURITE FOOD: CLUB BISCUITS!
HOBBIES: BORING PEOPLE ABOUT GOLF

"TONY" SAYS:

"BE GREEN, AND PLAY GOLF. IT'S A FAIR WAY TO PLAY A ROUND!"

```
TO CLUB
RND
IF (:R = 0) [PR [NEAR TO GREEN]]
IF (:R = 1) [PR [BALL ON GREEN]]
OK
END
```

```
TO PUTT
RND
IF( :R = 0) [PR [CLOSE TO HOLE ]]
IF( :R = 1) [PR [IN HOLE ]]
OK
END
```

TO PLAY IT:

TYPE: MAKE "S 0 THIS SETS YOUR STROKES TO ZERO AT THE START OF THE GAME.

THEN TYPE TEE <RETURN> UNTIL THE BALL GETS OFF THE TEE.

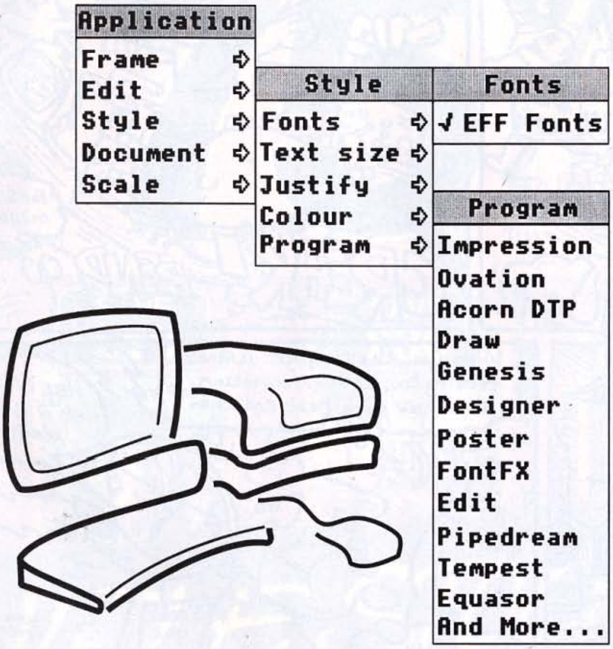
IF THE BALL GOES A FAIR DISTANCE YOU CAN THEN USE: CLUB <RETURN>

USE PUTT <RETURN> WHEN YOU'VE LANDED ON THE GREEN.

See us at the Acorn User Show
on Stand 53

ELECTRONIC *font* F·O·U·N·D·R·Y

The **Archimedes Font specialists**


Application
Frame
Edit
Style
Document
Scale
Style
Fonts
Text size
Justify
Colour
Program
Fonts
√ EFF Fonts
Program
Impression
Ovation
Acorn DTP
Draw
Genesis
Designer
Poster
FontFX
Edit
Pipedream
Tempest
Equasor
And More...

Once again we will be exhibiting at the **Acorn User Show** from the 11th to the 13th of October. Come along and see what we offer:

The complete range of **fonts**, in all languages, available for sale

NEW fonts available

FREE copies of our **Font Catalogue,** DTP guide and price list

Examples of our range of **Indic, Hebrew, Cyrillic** and **Greek** fonts including keyboard drivers

A range of computers, monitors, printers, hard drives, SCSI drives...

Complete **Professional Desktop Publishing Systems** including: hardware, software, fonts and training

Our technical staff have many years experience in the Archimedes computer range and they will be on hand to give technical advice about hardware, software, Desktop Publishing and graphic design

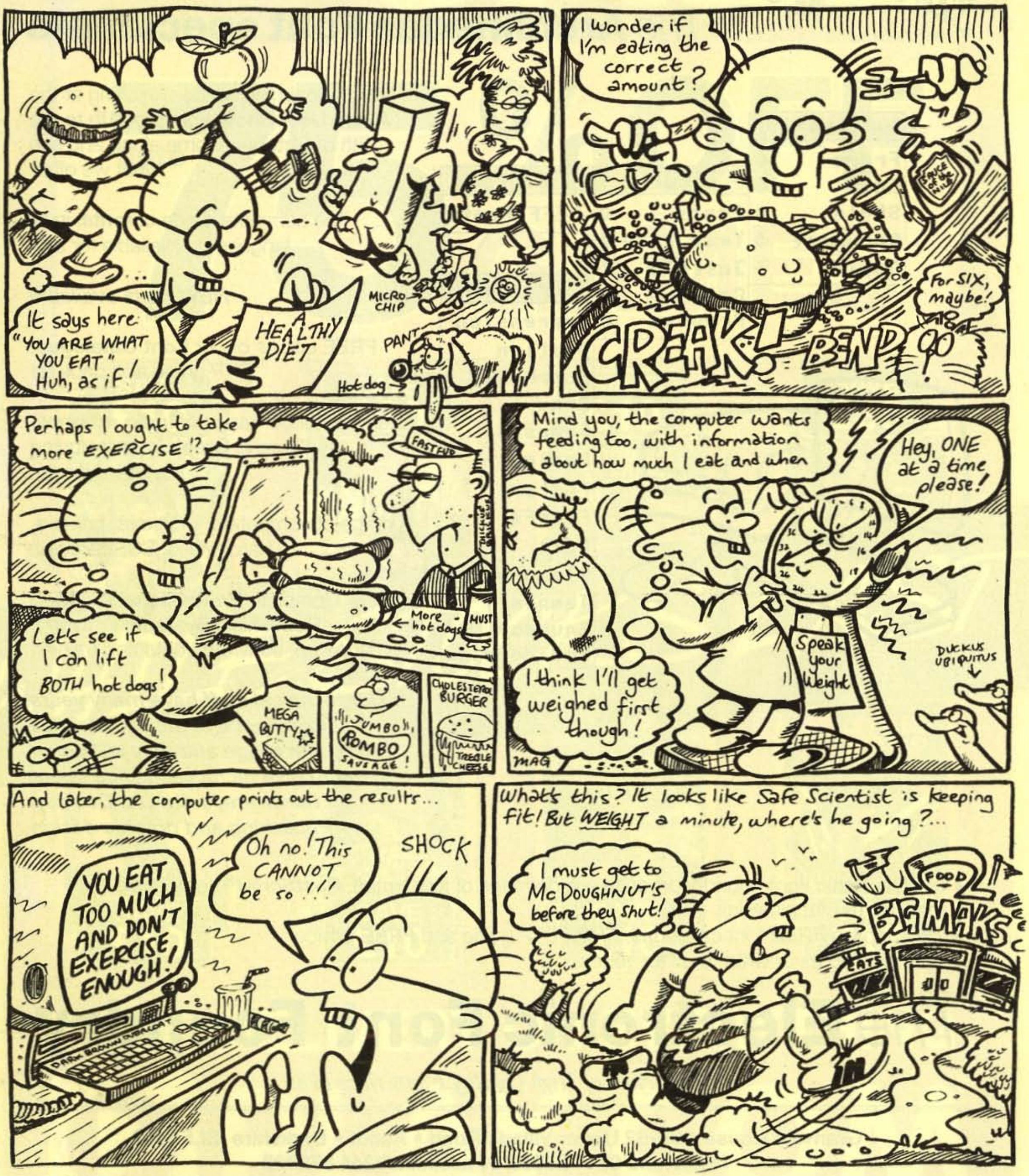
- The Electronic Font Foundry produce a wide range of fully hinted, ***PostScript®*** compatible fonts for the Archimedes.
- We supply a ***FREE*** font catalogue, ***FREE*** DTP guide and ***FREE*** advice.
- Why not ring us or write to us for your copy.

The **Electronic Font Foundry**

Purveyors of High Quality Fonts since 1985

Granville House • 50-52 Upper Village Road • Ascot • Berkshire SL5 7AQ
Telephone 0344 28698 • Facsimile 0344 872923

The Safe


It says here "YOU ARE WHAT YOU EAT". Huh, as if!
A HEALTHY DIET
MICRO-CHIP
PANT
Hot dog
I wonder if I'm eating the correct amount?
For SIX, maybe!
CREAK! BEND
Perhaps I ought to take more EXERCISE!?
FASTFUD
Let's see if I can lift BOTH hot dogs!
More hot dogs
MUST
MEGA BUTTY
JUMBO ROMBO SAUSAGE!
CHOLESTEROL BURGER
TREBLE CHEESE
Mind you, the computer wants feeding too, with information about how much I eat and when
Hey, ONE at a time please!
I think I'll get weighed first though!
Speak your Weight
DUCKUS UBIQUITUS
MAG
And later, the computer prints out the results...
YOU EAT TOO MUCH AND DON'T EXERCISE ENOUGH!
Oh no! This CANNOT be so!!!
SHOCK
What's this? It looks like Safe Scientist is keeping fit! But WEIGHT a minute, where's he going?...
I must get to McDOUGHNUT'S before they shut!
FOOD
BIG MAKS
EATS

LET'S COMPUTE!

Scientist

A healthy diet

The experts always say "we are what we eat". This month we have a simple and fun way to find out if you eat about the right amount.

I'll start with a health warning: Don't take any results you get too seriously. They are just a rough guide, because they don't take into account how big you are, how much exercise you do or whether you are a boy or a girl.

My figures come from an excellent little book – The Tesco Guide to Nutrition Information – which gives more than just the energy in food.

If you get one of these free booklets you can find out about protein, fat, carbohydrate and fibre as well.

By the time you read this there will be a new National Curriculum for Science. Food and nutrition will be on it somewhere – it's quite a central theme in Science these days.

The editor always tells me to keep my programs short, so I couldn't include lots of fancy features like bar graphs to show how much you eat, or the chance to put in details about yourself like your age, sex and lifestyle so that the result could be more appropriate to you.

But there's no reason why you can't put those special features in and improve your programming skills by building on this program.

Next month we'll generate a multiple choice quiz which will be all about our Earth in Space. See you then.

MEGA!
RIGHT ON!
"TUBE FOOD"
HEFT
MAG

```
   10 REM A Good Diet?
   20 REM by The Safe Scientist
   30 REM (c) The Micro User
   40 :
   50 MODE 3:VDU19,0,4;0;
   60 Max%=3:Total%=0
   70 DIM food$(Max%),energy(Max%)
   80 PROCask("Good morning! What do you
 want for breakfast?")
   90 PROCask("At last! It's morning bre
ak time!")
  100 PROCask("Hurrah! It's lunchtime!")
  110 PROCask("After school ... how abou
t a snack?")
  120 PROCask("It's time for the main ev
ening meal.")
  130 PROCresults
  140 PRINT"Press Space to try again"
  150 REPEAT UNTIL GET=32:RUN
  160 :
  170 DEFPROCask(q$)
  180 PRINT:PRINT:PRINT q$
  190 FOR N%=1 TO Max%
  200 READ food$(N%),energy(N%)
  210 PRINTN%") "food$(N%)
  220 NEXT
  230 PRINT"Choose one";
  240 REPEAT INPUTC%:UNTILC%>0 AND C%<=M
ax%
  250 Total%=Total%+energy(C%)
  260 PRINT"Press Space to continue"
  270 REPEAT UNTIL GET=32:CLS
  280 ENDPROC
  290 :
  300 DEFPROCresults
  310 PRINT:PRINT
  320 PRINT"Your energy for the day is "
;Total%" kilojoules"
  330 PRINT:PRINT
  340 PRINT"You probably need between 60
00 and 8000 kilojoules"
  350 IF Total%>8000 PRINT"You should ea
t less or exercise more"
  360 IF Total%<6000 PRINT"You should ea
t more"
  370 IF Total%>=6000 AND Total%<=8000 P
RINT"Well done"
  380 ENDPROC
  390 :
  400 DATA "Bacon, eggs and fried bread"
,1500
  410 DATA "A bowl of cornflakes, milk a
nd sugar",1200
  420 DATA "Nothing - not enough time",0
  430 :
  440 DATA "A bag of crisps",800
  450 DATA "A Mars bar",1200
  460 DATA "Nothing",0
  470 :
  480 DATA "Lamb, cabbage and roast pota
toes, apple pie and custard",2900
  490 DATA "Beefburger, beans and chips
plus a doughnut",3900
  500 DATA "Cheese salad and a yoghourt"
,2100
  510 :
  520 DATA "A packet of peanuts",1000
  530 DATA "A cheese sandwich",1000
  540 DATA "Nothing",0
  550 :
  560 DATA "Pork chop, peas and chips",2
200
  570 DATA "A couple of sandwiches",1800
  580 DATA "Fish and chips",1500
  590 :
  600 DATA "Another Mars bar",1200
  610 DATA "A bag of crisps",800
  620 DATA "Nothing",0
```

Get it right ✓

```
 10 =    0 0    150 = 2C03 6    290 = 9719 B    430 = 9719 0    530 =  88E E
 20 =    0 0    160 = 9719 6    300 = BE11 7    440 = 55C2 C    540 = 731C 0
 30 =    0 0    170 = 7875 3    310 = C102 E    450 =  916 B    550 = 9719 0
 40 = 9719 9    180 =  E70 2    320 = 771E 5    460 = 731C C    560 = 476C A
 50 = 33B2 0    190 = BA2B 6    330 = C102 0    470 = 9719 4    570 = FB34 A
 60 = 1F4B 3    200 = DA2A F    340 = A1B2 9    480 = 12FC 0    580 = DC1B 9
 70 = C627 5    210 = FA37 2    350 = 119C B    490 = 823B 0    590 = 9719 0
 80 = 478D F    220 = 2C83 D    360 = B200 4    500 = 19FE D    600 = 8ECD 3
 90 = 6CDD B    230 = 8559 E    370 = 2E72 D    510 = 9719 C    610 = 55C2 8
100 = 791F A    240 = 2AA0 6    380 = ED0F 1    520 = 6E1D 7    620 = 731C F
110 =  A22 6    250 = 92DE E    390 = 9719 A
120 = 120F A    260 = EEDA 1    400 = 3B1E C
130 = 53B7 B    270 = 2823 C    410 = FC53 5
140 = DF34 B    280 = ED0F 7    420 = 9C1B D
```

COLOURJET 132

COLOUR INK JET PRINTER

Compatible with:–

- IBM pc
- Archimedes
- Nimbus
- BBC Micro
- Amiga
- Apple Mac (serial version)

LOW COST

LIST PRICE from £636 + VAT

COLOURJET 132
FF
LF
ON LINE
ON LINE
ALARM
READY
COREL
COREL DRAW! PROCESS COLOR CHART
Printed by Integrex Colourjet
COREL DRAW!

Low Operating Cost

Windows 3 Driver available

EMULATES OTHER COLOUR PRINTERS EG. IBM 3852, Canon PJ1080A, Quadjet
PRINTS OVERHEAD TRANSPARENCIES

EDUCATIONAL DISCOUNTS AVALIABLE

INTEGREX LTD., CHURCH GRESLEY, SWADLINCOTE,
DERBY'S DE11 9PT
Tel (0283) 551551
Fax (0283) 550325
T/x 341727 INTEGX

THE amazing response to our Centenary Competition had the post room reeling with entries pouring in from all over the world.

Even with the huge array of prizes in our hundredth issue issue ,not everyone could be a winner. However, the lucky ones chose from a variety of products from games to hard drives, from office furniture to a trip for two to Paris. This romantic trip was won by Margaret Rimmer from Coventry. She flew out to Charles de Gaulle airport and whizzed off to the Hotel Splendid Etoile near the famous Arc de Triomphe to explore the sites, sounds and taste of one of the most beautiful cities in the world.

A more lasting prize was the range of Opus furniture won by J. W. Jump of Broughton. With a huge array of tables, chairs and workstations to organise your computer system in the most ergonomic way, Opus can arrange even the most disorganised of offices.

ideA

Envy of his friends must be Charles Pearce from Colsterworth who has now got his own IDE hard drive from Ian Copestake Software - easy to install and excellent value for money. Integrating perfectly with the Risc OS environment, he'll wonder how he ever managed without one.

CENTENARY celebration

Readers from all over collect their monster birthday competition prizes

MINERVA

Serious users won a selection of the best software around for BBC, Electron and Archimedes. M. Wheeley from Beaconsfield and N. Brown from Cannock can now create their own entertainment courtesy of Creator from Alpine Software, while Major McCloghry from Banbury can keep his desk and table tops clear with DeskTop Office from Minerva.

On the Electron front three copies of Click from Slogger have wended their way to J. K. Foskett, of Highcliffe on Sea; A. Cossar, Houston and H. B. Overvelde from The Netherlands. While M. Matejtschuk from Abingdon is the lucky recipient of a Plus 1 from Pres.

Also from Pres came an A3000 monitor stand for K. McHalsey from Chessington. Archimedes software consisting of 4Mation's Poster, Clares' Schema and Rhapsody II, Equasor and Impression Junior from Computer Concepts and Quest Paint and Mouse from Watford, plus Archway 2 from Simtron went to: K.MacGillivray, Kirkhill; L. Pilz, Australia; A. Waterhouse, Otley; N. Saville, Newark; R. Owen, Acton Trussell; C. Barrington Brown, Cranfield; E. Turner, Maidenhead, C. G. Birchfield, Woodley and J .Counsell from Crowborough.

J. C. Haines from London won a Pineapple Video Digitiser with which he can use his Archimedes to multi-task his way to a multimedia experience. As well as grabbing pictures from TV and other sources to add to documents he could also watch his favourite telly programs while doing a spot of writing.

But to download Teletext he'd need a copy of Morley's Teletext Adaptor, of which K. Wise from Stoke Gifford and R. T. Bond from Tiverton are now the proud owners.

Educationally speaking J. Ryan, Galway; Y. E .Baldwin, Buxton and D. Swain from Welwyn have a lot of work on their hands to work through their copies of Fun School 3.

THE MICRO USER

The following 10 winners have a whole year's reading of the best Electron/BBC/Archimedes magazine to do, as they have each won a subscription to *The Micro User*: A.Mitchell, Sunderland; I. Kershaw, Poynton; H. C. Leivers, Beddau; K .Middleton, Belfast; J. Caulfield, London; T. Gamlin, Hanham, F. L. Davies, Colwyn Bay; C. A. Gaughey, Canterbury; G. Ozdurai, London and T. Thomas from Birkenhead.

An Aladdin's cave of games from Superior, Fourth Dimension, Cygnus, The Serial Port, Minerva and MicroPower have been distributed among: I. Summers, Dartford; D. Rower, Bottesford; B. J. Benson, Newmarket; K. Lawrence, East Bridgford; G. Moore, Farnborough; A. Evans, Bracknell; C .Courtney, Redhill; T. Ngyou, Camberley; D. Tunely, Congleton; A. Moss, Cheadle Hulme; P. Mason, Kemsing; R. N .Carter, Reading; J. Dickson, Hexham; M. Wright, Croydon; R. Blythe, Newquay; J. S. Wainwright, Tring; M. Cooper, Germany; P. Tasker, Harbury; J. Dhanda, Derby; S. Meers, Welwyn Garden City; D. Cairns, Salford; S. R. Lambert, Southampton; D. Radford, Bolton; D. Hobbs, Sutton Coldfield; A .Houghton, Prescot; D. Millard, Rayleigh; R. Arnold, Worksop; A. Evans, Middlesborough; J. K. Spry, Chatham; M. Ford, Barnsley; A. Brush, Wideopen, R. Gudgeon, Ripon; B. R. Osbourne, Basildon; Stuart Fraser, Houston; A. Cox, Maidenhead; R. J. Glover, Oxford; T. A. Brown, Aylesford; M. Fisher, Wick; P. Cannon, Ellesmere Port; J. A. Schofield, Warash; M. Firth, Whitley Bay; P. Williams, Tywyn; A. J .Griffin, Banbury; A. H. Green, Wigan; P. Rawson, Denmead; N. Dickson, Lincoln; L. McGinty, Ventnor and M. Montgomery from Croydon.

Ian Copestake Software

September 1991

ARCHIMEDES SOFTWARE

1st Word Plus	Aco	£62
– manual	Aco	^{V0}£10
A3000 Technical Guide	Aco	^{V0}£30
A540 Technical Guide	Aco	^{V0}£65
ABC Basic Compiler	Oak	£73
– ABX Utils		£39
Adventure Language Prog System	Alp	£28
Alerion	Dabs	£11
Alien Invasion	Dabs	£11
All In Boxing	Dabs	£11
Alphabase	Cla	£34
Amazing Ollie		£13
Ancestry	Min	£59
ANSI C Release 3	Aco	£122
– manual	Aco	^{V0}£19
Apocalypse	4th	£20
Arcade 3 Compilation	Cla	£12
Arcade Soccer	4th	£15
ArcComm 2	Lon	£38
ArcDFS	Dabh	£22
Arcendium	Dabs	£13
Archway 2	Sim	£78
ArcLight	Ace	£38
ArcMonitor	Cam	£21
ARC-PCB	Sil	£138
ArcPinball	Shi	£18
– Professional	Sil	£269
– Schematics	Sil	£475
Arc Recorder	Oak	£28
Arcterm 7	Ser	£59
ARCticulate	4th	£18
ARCtist	4th	£19
ArcTrivia	Mora	£21
Armadeus	Cla	£59
Artisan II	Cla	£43
Astro	Top	£18
Atelier	Min	£63
Autosketch CAD	Aut	£65
Avon	Top	£16
Ballarena	Ete	£15
BASIC V: A Dabhand Guide	Dabh	^{V0}£10
BBC Basic Guide	Aco	^{V0}£19
Blaston	Ete	£15
BlowPipe	Ecl	£15
Boogie Buggy	4th	£17
Boxing Manager	Kri	£20
Break 147 & Superpool	4th	£18
Broadcast Loader	Aco	£63
Bug Hunter / MoonDash	Min	£15
Bug Hunter in Space	Min	£14
Business Accounts	Min	£298
Business Supplement	CC	£40
Cambridge Pascal	Dabh	£60
Cartoon Collection	MicS	£16
Caverns	Arc	£13
C: A Dabhand Guide	Dabh	^{V0}£15
C Development System	Bee	£77
Charts & Graphs	ComT	£17
Chess 3D	MicP	£14
Children's Graphics	MicS	£16
Chocks Away	4th	£17
– Compendium	4th	£27
– Extra Missions	4th	£14
Clip Art Þ	Gra	£19
Clip Art Set 1 Đ	Mid	£29
Clip Art Set 2 Đ	Mid	£29
Coffee		£27
Colour Screen»Mac	Hum	£90
– Arc/Mac Cable	Hum	£24
Control Panel	Lin	£14
Concept Designer	Lon	£22
Conqueror	Sup	£18
Cops	Alp	£15
Corruption		£18
Craftshop 1	4ma	£27
Craftshop 2	4ma	£27
Creator	Alp	£31
Crisis	Cam	£15
Cross-32 Meta-Assembler	Bai	£175
– manual for evaluation		^{V0}£15
DataVision	Sil	£114
Decorated Alphabet Þ	MicS	£17
Desktop Folio	Esm	£82
Designer Intro	Tec	£75
Desktop Office	Min	£96
Desktop Publisher	Aco	£108
– manual	Aco	^{V0}£10
DFS Reader	Bee	£9
Disc Tree	Mit	£37
DrawBender + Fonts	ICS	£12
– site licence	ICS	£50
Dread Dragon Droom	Res	£21
Dreamwave	Emr	£34
Drop Ship	4th	£14
DTP Graphics 1 (Mono) Þ	MicS	£15
DTP Graphics 2 (Colour)	MicS	£17
DTP Seeds	4ma	^{V0}£8
Easiword	Min	£29
EasiWriter	Ico	£138
EluciData (OCR)	Irl	£155
– bought with Irlam Scanner		£79
Equasor	CC	£39
E-Type	4th	£14
– Designer	4th	£13
– Extra 100 Miles	4th	£13
Euclid	Ace	£46
Family Favourites	Min	£15
Film-Maker	Sil	£78
Financial Accountant	Sil	£203
Finding the Way (age -5)	Rai	£7
Fine Racer	Ete	£14
Fireball 2	Cam	£17
First Words and Pictures	Cha	£19
Flexifile	Min	£98
Flight Path		£27
Flying Start II	Mit	£86
Fontasy	ICS	£TBA
FontFX	DatS	£9
– site licence	DatS	£70
Font Pack	Aco	
– Newhall / Starter / Symbol		each £35
Font Pack 1 (Paladin, Swiss B, SymbolB, Vogue)	Bee	£47
Font Pack	CC	
– Avant Garde / Bookman / Pembroke		each £29
Fortran 77 Release 2	Aco	£75
Fourier Analysis	Arm	£60
Freddy's Folly	Min	£13
Freddy Teddy	Top	£18
Freddy Teddy's Adventure	Top	£16
Fun School 2 (age under 6)	Datb	£16
Fun School 2 (age 6-8)	Datb	£16
Fun School 2 (age 8+)	Datb	£16
Gammaplot	Min	£38
Gate Array Design / Teaching	Sil	£114
Genesis I	Oak	£40
Genesis II	Oak	£99
GerberPlot	Sil	£91
Giant Killer Maths Adventure	Top	£16
Giant Killer Support Disc	Top	£14
GraphBox	Min	£57
Graphic Writer	Cla	£24
Gumshoes	4th	£18
Hard Disc Companion	Bee	£33
Hearsay	Bee	£52
Herewith the Clues!		£20
History Costume Þ	MicS	£16
Holed Out	4th	£14
– Designer	4th	£14
– Extra Courses 1	4th	£13
– Extra Courses 2	4th	£14
Home Accounts	Min	£36
Hostages	Sup	£14
Hotlink Presenter	Lin	£40
House of Numbers	Cha	£19
Hoverbod	Min	£13
Hyperbook Reader	Lon	£47
Hyperbook Electronic Library (including Reader)	Lon	£109
Ibix the Viking	Min	£14
I²C SWI	Bai	£15
– bought with Oddule	Bai	£5
Impression 2.1+	CC	£125
– network version		£650
– site licence		£545
– extra hardware key for sites only		£15
– extra manual for sites only		^{V0}£8
Impression Junior	CC	£69
– site licence		£435
– extra manual for sites only		^{V0}£7
Inertia	4th	£14
Instigator	Dabh	£39
Interdictor 2	Cla	£25
Investigator 2	Ser	£21
IronLord	Ubi	£14
ISO Pascal Release 2	Aco	£75
Jet Fighter	Min	£12
Jiglet	4ma	£25
Jigsaw	4ma	£27
Junior Database	Iot	£51
Keyboard Player	Cha	£17
Knowledge Organiser	Cla	£42
Landmarks	Lon	
– Egypt / Rain Forest / Second World War / Victorians		each £18
Letters and Pictures	Cha	£17
Level 4 Fileserver	Aco	£160
LISP	Aco	£145
Little Red Riding Hood (age 5-8)	Sel	£14
Logistix	Aco	£77
Logo	Lon	£45
Maddingly Hall	Min	£12
Mad Professor Mariarti	Kri	£15
Magpie	Lon	£39
Mah-jong Patience	Cam	£15
Mailshot	Min	£29
Man-At-Arms	4th	£14
Manchester United	Kri	£19
Maps and Landscapes 1	Cha	£19
Maps and Landscapes 2	Cha	£19
Mark Master	Cha	£67
Master Break	Sup	£15
Masterfile II	Bee	£19
Memory Magic	Cam	£14
Mental Maths	Cam	£16
MicroDrive Golf	Cam	£15
– Extra Courses	Cam	£13
Micro Trader Accounts	Pre	£199
Mig-29 Fulcrum	Dom	£28
Minotaur	Min	£13
Missile Control	Min	£13
Mogul	Ace	£15
Movaword	Cha	£17
MultiFS	Arx	£27
Multistore version II	Min	£192
Nevryon	4th	£14
No Excuses	Arc	£17
Nominal Ledger	Min	£78
Note Invaders	Cha	£17
Numerator	Lon	£66
Numbers and Pictures	Cha	£17
Numerator Chaos	Lon	£18
Office Tools	Sil	£276
Ollie Octopus Sketchpad		£13
Olympics	4th	£14
Order Processing / Invoicing	Min	£78
Orion	Min	£13
Orrery	Spa	£85
Ovation	Bee	£85
Overload	Cla	£13

ICS, Dept TMU14, 10 Frost drive, WIRRAL, Merseyside, England, L61 4XL

Tel: 051-632 1234   Fax: 051-632 3434

ABBREVIATIONS

Ace	Ace
Aco	Acorn
Alp	Alpine
Apr	Apricote
Arc	Arcana
Arm	Armadillo
Arn	Arnor
Arx	Arxe
Aut	Autodesk
Bai	Baildon Electronics
Bee	Beebug
Cal	Calligraph
Cam	Cambridge International Software
Can	Canon
CC	ComputerConcepts
Cha	Chalksoft
Cir	Circle
Cit	Citizen
Cla	Clares
Col	Colton
ComT	Computer Tutorial
Dabh	Dabhand
Dabs	Dabs Press
Datb	Database
DatS	Data Store
Dom	Domark
Ecl	Eclipse
Eiz	Eizo
Emr	EMR
Esm	ESM
Ete	Eterna
Gem	Gem
Gra	Graphics Factory
Hum	Human-Computer
Hyb	Hybrid
Ico	Icon Technology
ICS	Ian Copestake
Ife	IFEL
Iot	Iota
Irl	Irlam Instruments
Kad	Kador
Kri	Krisalis
Lin	Lingenuity
Lon	Longman Logotron
MicP	Micro Power
MicS	Micro Studio
Mid	Midnight Graphics
Mit	Mitre
Min	Minerva
Mora	Moray Micro
Morl	Morley
Mus	Musbury
Oak	Oak
Pan	Pandora
Pil	David Pilling
Pre	PRES
Rai	Rainbow
Res	Resource
Sel	Selctive
Ser	Serial Port
Shi	Shibumi
Sil	Silicon Vision
Sim	Simtron
Spa	Spacetech
Sta	Star
Sup	Superior Software
Tec	TechSoft
Top	Topologika
Ubi	UBI Soft
Vir	Virgin
Wil	Wild Vision
4ma	4Mation
4th	Fourth Dimension
Đ	Draw format
Þ	Paint format

ORDERING INFORMATION

VAT UK customers please add 17½% to the total price, except for the zero-rated items marked ^{V0}. E.g., £100 × 1.175 = £117.50. Our VAT number is 384 3312 56.

CARRIAGE IS FREE WITHIN MAINLAND UK IF YOU PAY ON ORDERING. Please remember this when you compare prices!

Overseas carriage Add £6 (Europe) or at least £12 (elsewhere) for each software item if paying by pounds sterling bank draft payable in England, or Eurocheques not exceeding £100 each. If you are paying by credit card we will add airmail and insurance at cost. (Add £10 + 1% of the total price if you can only pay in your own currency). Some items are expensive, e.g. Impression 2 costs £22 to Australia!

Credit cards are welcome. We do not charge your account until your order has been fulfilled. The name and address for delivery of goods must be as known to the credit card company. If you are leaving an order on our answering machine include your telephone number (home will do), the expiry date of your card, and your calculation of the total payment due.

Official orders are welcome. Payment is due in 14 days. Invoices are subject to carriage and late payment charges.

Site licences Please enquire if no price is shown.

All products, prices and specifications are offered in good faith and are subject to change without notice. Your order will receive our attention immediately, but suppliers sometimes keep us waiting.

Goods are guaranteed but we do not supply them on approval.

Parametric Design Tool	Oak	£383
PC Access	Min	£30
PC Emulator 1.6	Aco	£87
Pendown	Lon	£47
– Extra Outline Fonts	Lon	£16
Personal Accounts	Apr	£24
PipeDream 3	Col	£109
Pipe Mania		£18
Pirate	Cha	£16
Plague Planet	Alp	£13
Poster	4ma	£75
Powerband	4th	£17
Prehistoric Animals Ϸ	MicS	£16
Premier	Cir	£71
– DataBase	Cir	£25
– WordProc	Cir	£25
Presentation System	Sil	£61
Presenter II	Lin	£35
Presenter Story	Lin	£145
PrimeArt	Min	£74
Printer Driver, RISC OS – Epson / Star colour	Bee	£13
Printer Driver, RISC OS – JX (Epson / Star / Citizen colour)	Ace	£13
Printer Driver, RISC OS – PJ (HP Paintjet Colour)	Ace	£12
Pro Artisan	Cla	£70
Prolog X	Aco	£145
Protext	Arn	£114
Puncman 1 and 2	Cha	£16
Puncman 3 and 4	Cha	£16
Puncman 5 to 7	Cha	£17
Purchase Ledger	Min	£78
Pysanki	4th	£15
Quazer	4th	£9
QuicKey	ICS	£10
– site licence		£45
Realtime Solids Modeller	Sil	£132
Real McCoy	4th	£20
Real McCoy 2	4th	£20
Red Shift	Min	£14
Render Bender I	Cla	£55
Render Bender II	Cla	£101
Reporter	Min	£29
Repton 3	Sup	£15
Return to Doom	Top	£16
Revelation	Lon	£54
Reversals	Cha	£17
Rhapsody 2	Cla	£45
RiscBASIC Compiler	Sil	£112
RiscForth Compiler	Sil	£110
RISC OS Companion Vol 1	Oak	vo £49
RISC OS Programmer's Reference Manual	Aco	vo £80
RISC OS Style Guide	Aco	vo £11
RiscType V2	Cam	£16
RoboLogo	Sil	£69
Rotor	Arc	£19
Sales Ledger	Min	£78
Saloon Cars	4th	£18
Schema	Cla	£89
School Administrator	Min	£69
Scorewriter PMS Dot matrix	Emr	£127
Scorewriter PMS PostScript	Emr	£425
ShareHolder	Sil	£139
ShowPage	CC	£117
Shylock Gnomes (age 10-15)	Sel	£16
Sigma Sheet	Min	£38
Snippet	4ma	£26
SolidCAD	Sil	£115
SolidsRender	Sil	£115
SolidTools	Sil	£269
Spark	Pil	£5
Sparkle	Morl	£59
Speech!	Sup	£14
Spelling – week by week	Cha	£19
Splice	Ace	£22
Sporting Triangles	CDS	£20
Square Route	Cam	£16
Stock Management	Min	£78
Studio 24 Plus	Emr	£149
Super-Dump	Sil	£20
Superior Golf	Sup	£15
Super-Plot	Sil	£28
Supersound Creations	Cam	£15
System Delta Plus II	Min	£52
– Reference Manual	Min	vo £25
Tactic	Ete	£15
Talisman	Min	£12
TechWriter	Ico	245
Telling the Time (age 3-12)	Rai	£7
Thundermonk	Min	£12
Timetabler	Min	£575
Timewatch	Mit	£24
Tiny Logo + Tiny Draw	Top	£27
Toolkit Plus	Cla	£35
Tools Graphics Ð	MicS	£23
Touch Type	Iot	£40
Tower of Babel	Kri	£25
Tracer	Mid	£46
Tracker	Ser	£37
Transport Ð	MicS	£25
Trivial Pursuit	Dom	£22
Turbo Type	Cam	£22
Tween	Ace	£22
Twin	Aco	£25
Twin World	Ubi	£14
TWO (Task and Window Organiser)	ICS	£19
– site licence	ICS	£60
Typing Tutor	Cam	£17
U.I.M	4th	£23
Utility Disc 1	DatS	£13
Utility Disc 2	DatS	£13
View-Mac 3	Hum	£65
– Arc/Mac Cable	Hum	£24
White Magic	4th	£15
White Magic 2 + Designer	4th	£15
Wimp Game	4th	£14
Wonderland	Vir	£24
Words and Pictures	Cha	£17
World Geography Maps Ð	MicS	£23
WorldScape	Ecl	£15
World Wildlife Ϸ	MicS	£16
Worra Battle	Oak	£13
WorraCAD	Oak	£75
Worra Plot	Oak	£24
Zarch	Sup	£16

PRINTERS

ArcLaser	Cal	£906
Bubble Jet BJ-10e	Can	£205
Bubble Jet BJ-300	Can	£360
Bubble Jet BJ-330	Can	£405
Laser Direct Qume	CC	£856
Laser Direct LBP-4 Card	CC	£323
Laser Direct LBP-8	CC	£1280
– new toner cartridge		£65
LBP-4	Can	£660
Archimedes parallel printer cable		£8

FUNCTION KEY STRIP ORGANISER

Arckey	ICS	vo £3
– quantity of 4		vo £10

MEMORY, ARM3 ETC

Fitting extra unless stated
† Fitting is straightforward
‡ Fitting requires expertise

A3000 2 Mb Non-upgradable †	Ife	£55
A3000 2 Mb Upgradable †	Ife	£63
A3000 4 Mb †	Ife	£149
A310 4 Mb Plug-in inc MEMC1a †	Ife	£298
A310 4 Mb Solder-in inc MEMC1a ‡	Ife	£298
ARM3 ‡		£400
4-slot 4-layer Backplane	Ife	£59
A310 RISC OS Carrier Board (for the future?)	Ife	£25

MICE, MONITORS

Clares Micro Mouse	Cla	£26
9060S	Eiz	£450
9070S	Eiz	£640

SCANNERS, DIGITISERS

ArcScanner including Epson GT-4000	Cla	£1660
Hawk V9	Wil	£330
– A3000 version	Wil	£390
Image (colour)	Irl	£589
i-Scan 200	Irl	£539
i-Scan 400	Irl	£589
Scan-Light A4	CC	£346
– as above + Sheet Feeder		£432
Scan-Light Junior	CC	£175
– A3000 version (internal)	CC	£175
Scan-Light Junior 256	CC	£210
– A3000 version (internal)	CC	£210

ODDULES

AnDi	Bai	£49
I²C SWI	Bai	£15
– bought with Oddule		£5
Oddule Adaptor	Bai	£10

(needed with your first Oddule unless you have an I²C socket)

ideA

THE ONLY ARCHIMEDES IDE PRODUCTS WITH A PROVEN TRACK RECORD

The number at the end of a product name is the formatted capacity in megabytes (rounded down). An L indicates a 1 inch high disc: two of these may be fitted in the same cradle or external case, sharing the same controller card. An S indicates a 2½ inch wide disc mounted directly on the controller card.

OUR PRICES FOR 'UPGRADES' INCLUDE THE ideA CONTROLLER CARD, A FAN WHERE NEEDED, AND EVERYTHING ELSE YOU WILL REQUIRE.

Our A310 internal upgrades need no backplane, so you may save over £60! If you do use one it must be a four-layer type.

ALL THE FOLLOWING GOODS ARE AVAILABLE NOW, AND ARE BACKED BY A YEAR'S EXPERIENCE IN SELLING IDE PRODUCTS.

COMPLETE UPGRADES

A300/400/500 internal upgrade

IDEARCIN20S ("hard card")	£475
IDEARCIN40	£269
IDEARCIN40L	£309
IDEARCIN80L	£389
IDEARCIN120L	£549
IDEARCIN200	£839

A300/400/500 external upgrade

(May also be fitted to A3000 external expansion slot using a podule case or racking system)

IDEARCEX40	£395
IDEARCEX40L	£449
IDEARCEX80L	£499
IDEARCEX120L	£699
IDEARCEX200	£935

A3000 fully internal upgrade

IDEA3IN20	£375
IDEA3IN40	£575
IDEA3IN60	£775
Fitting if required	£35

A3000 external upgrade

(*External* drive using *internal* expansion slot; can combine with PRES Disc Buffer Board)

IDEA3EX40 etc
– prices as IDEARCEX40 etc + £10

Fitting if required	£35

SEPARATES

Additional hard discs

IDEA40L 40Mb	£219
IDEA80L 80Mb	£309
IDEA120L 120Mb	£459

A3000 accessories

IC PLINTH ***SPECIAL!*** ☆ ***£18***
(The best monitor stand)

ideA controller cards and accessories

(For use with your own IDE hard discs; we can only accept responsibility for performance with discs we have tested ourselves)

IDEARCIN Arc Internal	£110
IDEARCEX Arc External	£140
IDEA3EX A3000 External	£140
Internal hard disc cradle kit	£15
Fan kit (Standard)	£10
Case + power supply & fan	£125
Fan kit (A3000 Internal)	£15
Cable for second hard disc	£5

Recommended for backing up

Beebug Hard Disc Companion	£35

Recommended for an easier life with the Desktop

ICS Task & Window Organiser	£19

KEYBOARD COVERS

Seal 'n Type (spill-proof) – Archimedes	Kad	£14
– A3000	Kad	£14

NEW! from ICS

SAFE FAN CONTROLLER

- EASY TO FIT – NO SOLDERING
- MONITORS TEMPERATURE IN TWO PLACES
- VARIES SPEED FROM 10% TO 100% ACCORDINGLY
- TEST SEQUENCE ON POWER-UP TO GIVE YOU CONFIDENCE
- FOR A300 AND A400 SERIES

£15

COMING SOON from Ian Copestake Software

fontasy

See our new-style, full-colour, user-friendly advertisements in next month's magazines !

E&OE SO38 91AU27

From contents to index

STAND by to unleash your creative talent, to give a new depth to the written word – with desktop publishing. Whether you want to produce a poster, a pamphlet, a magazine or a book, DTP gives you the power to create a masterpiece or a total disaster, and knowing in advance what will and won't work should save you a lot of time and frustration.

This series introduces you to the delights of frames, styles, fonts, stories, documents and the like which you need to know to put together a professional-looking finished product. All you have to supply is hardware, software and your own ideas.

For the sake of uniformity the series will be based on Impression from Computer Concepts, but other software will be mentioned as appropriate. Almost all of the series will apply equally to Impression Junior, and any differences will be pointed out.

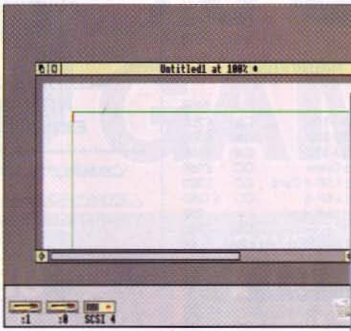


Figure I: A first view of Impression

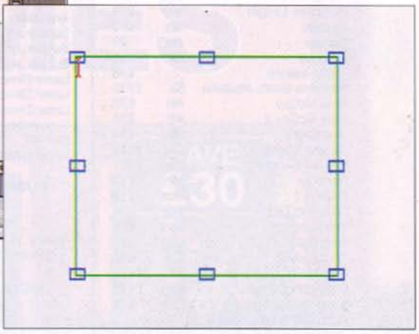


Figure II: A selected frame

Lessons from life before DTP

Up to a few years ago, a mix of many skills was required to produce a book or newspaper, in a complex process involving many people. Nowadays, because so many of the processes can be under your control, it may seem to be much simpler.

The combined power of computer and software have been harnessed to give tremendous speed and flexibility. But if you are interested in preparing anything more complicated than a letter you have to take on some of the disciplines developed by the traditional approach – built up over hundreds of years for very good and practical reasons.

Although some of them were more to do with the constraints imposed by the rigidity of metal type, many arise from aesthetics. That means understanding something of the design of the printed page – there are now many visual images competing for people's attention, so if your item looks attractive or compelling it is more likely to be read.

A frame in DTP defines the area of the page that will contain printed matter, be it words or pictures. You may find it a little tricky to get used to the idea of frames at first, but they are the foundation of DTP and you won't get far without them.

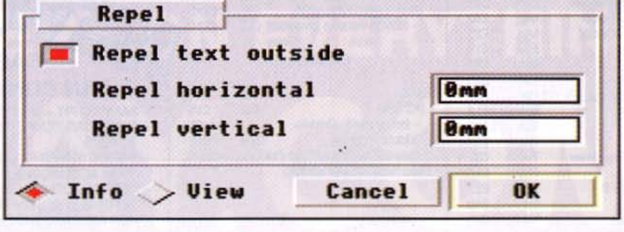
Imagine typing a three-column page on a typewriter. The paper would have to be put through three times with the margins set differently each time, and it would be very difficult to make the third column end neatly.

The only alternative would be to type it all out on separate sheets and stick the page together, a potentially messy and untidy job which is hard to do accurately.

And what if you need to leave holes for illustrations? With DTP there are none of these worries. All you have to do is set up the frames across the page and everything is taken care of.

Let's start by loading up Impression and clicking on its icon to create a new document. You should be faced with a screen similar to Figure I. Click on the window's toggle size icon at the top right to make it fill the screen. Now move the pointer around inside the window, and note that it changes shape depending on where it is. Outside the frame it's an open hand – you can push the page around with it – and inside it's a blue caret, which means Impression is expecting text to be entered.

At this point you can't type words in or do anything much because the document is basically asleep. Wake it up by clicking inside the dotted frame: the frame outline changes to solid green and a thin red caret appears at the top left of the



Alter frame

Local frame: Null

Position

X 12.85mm
Y 12.85mm
Width 184.3mm
Height 271.5mm

Repel

Repel text outside
Repel horizontal 0mm
Repel vertical 0mm

Figure III: The Alter Frame dialogue box, showing information on position and size

frame. The title bar of the window also changes from grey to yellow. This is important, because Impression can work with several documents at once, and only one at a time can be active – if you're careless you can do something unexpected to the wrong document.

You could use the frame now on the page. It's called the default frame and is put into every document automatically. We'll see later how to use or change it, but for now it will do no harm to ignore it. Instead let's make a new frame. To do that, use the Menu button to call up the main menu, slide across the Frame submenu and click on New frame.

Next, move the pointer to where you want the top left of your frame to be – crossed dotted lines help you position it accurately. Click on Select and drag the pointer in a southeasterly direction, stretching the frame until it is more or less the right size, judged either by the changing numbers or by eye.

When you let go of the Select button the frame will be placed on the page, and will be the selected frame.

You can always tell which is the selected frame because its outline is green. In addition, any frame created on a page, when selected, has a small square called a handle on each corner and each edge. A selected frame is shown in Figure II.

The handles are used to change the shape and size of the frame once it has been created. So you can't resize the default frame as it has no handles.

If you now move the pointer inside the new frame you will see it becomes a normal pointer again, meaning that it's waiting for you to do something with it. Try moving the pointer inside a handle – it changes to a star shape, indicating that you can pull the edge or edges of the frame attached to that handle. Click and hold Select, then move the mouse around and see which directions are effective. Now try a different handle.

You can move the frame bodily to another part of the same page simply by clicking and holding Select within the frame area. After a short delay the pointer will change to a open hand shape to alert you to the change of function.

If you move the mouse now, the whole frame will be dragged around until you release the button.

Another, sometimes more convenient, way of doing this is simply to place the pointer on the edge of the frame but not in a handle. This time the star shape means that you can move the whole frame – try it.

There's yet another way of positioning frames which is useful if you are copying an existing layout that you can take a ruler to. You can do this via the Frame submenu, by clicking on Alter frame, which brings up a dialogue box like that in Figure III. This contains a lot of information but for now we'll concentrate on the section on position.

The position given is that of the top left corner, measured from the top left corner of the page. Try altering the position and dimensions of the frame. When you've finished, click on the OK box to make the changes – or you can click on Cancel or the dialogue box's close icon to leave the frame unchanged. A quicker way to get to the dialogue box is to press Ctrl-F10.

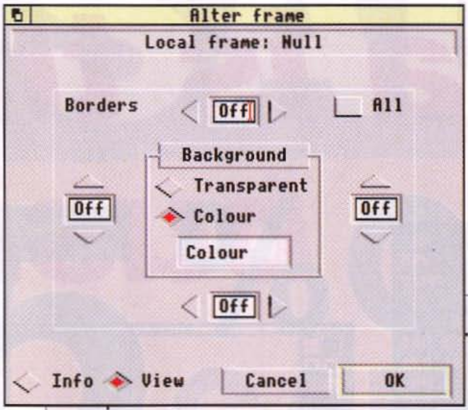


Figure IV: The Alter Frame dialogue box, showing controls for a frame's appearance

Key Tip

Cultivate the habit of saving your work at regular intervals – say every five or ten minutes. Impression's key shortcut Control+F3 makes this really simple. One day you'll be grateful for it.

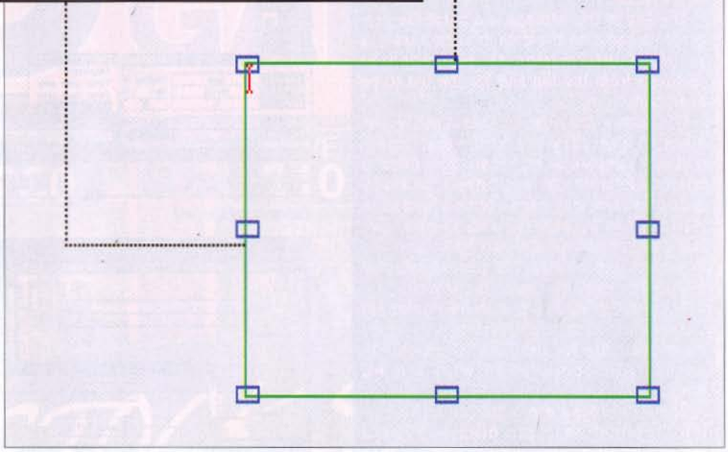


Figure V: A pair of frames, with one partly overlaying the other

Frame effects

Although you can see frames on screen, they are invisible on the printed page unless you choose to give them a border or a colour. You can do this from the Alter frame dialogue box.

Use Control+F10 to call it up and click on the View button. Figure IV shows what you should see.

Experiment with the borders yourself and instead of clicking on OK with Select, use Adjust so the dialogue box stays on screen while you see the effects of your choices. You needn't put a border on all sides of the frame – different ones can be used on any side independently, for different effects.

The Transparent and Opaque options let you give a frame a background colour or make it transparent. Tinted areas are useful for drawing attention to items, and transparent frames are vital for many effects, as we shall see later.

Before leaving the topic of frames for now, let's see what happens if you place one frame so it overlaps another. First make a frame about half the width of the page, then start another in the middle of it, enlarging it until it is about the same size as the first. You should end up with a pair of staggered frames like those in Figure V.

The frame created last is obscuring part of the older frame – it's on top of the other one. Such a stack can have many frames in it and they need not all overlap. A key fact in understanding DTP is that a frame can affect the contents of any frame below it in a stack, but lower frames can't affect the ones above them.

Fortunately there is a way of altering the stack order – if you select the overlying frame and click on Put to back in the Frame submenu you will see the other frame come to the top of the stack. Now use Bring to front to restore the original order.

Finally we come to the single most important action in DTP – saving your work. Call up the Document submenu, bring up the Save document dialogue box and save in the usual Risc OS way.

Data is their business

IN the very early days of computers – when they were made from valves and occupied whole rooms – they were seen as machines to perform arithmetical calculations many times faster than humans. With time their role has changed and now the computer has become more commonly used for storing information.

The key to this storage is a database program. Organising the data in such a way as to allow information to be added or removed from the file and for the file to be searched.

Databases are now an inescapable element of everyday life and we all come across examples of their use. Junk mail is one of the more obvious ones – an insurance company may have decided to mail all married men between 30 and 40 who have two children, own their own home and live in a particular county. The people selected will be the result of a database search.

There are a variety of different database packages for the Archimedes, plus many more available for the IBM PC which can be used in conjunction with the PC Emulator.

Some packages are more suited to certain applications than others, but the underlying principles are the same – they all provide a structure in which information can be stored in a file and then retrieved.

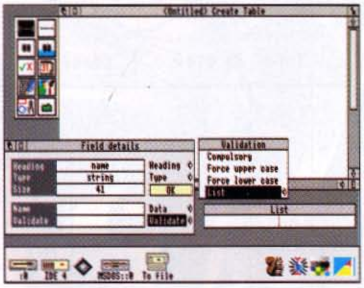
Records and fields

Any database whether the whole of the British Electoral Roll or a manufacturer's product range consists of data which can be linked to describe something. The individual items of data which are collected form a record known as fields.

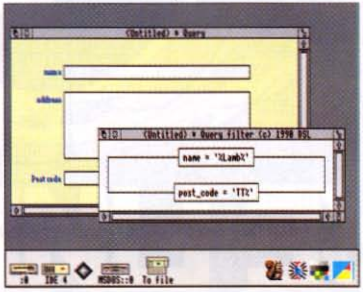
For example, on the Electoral Roll each record describes a particular person, with the individual items of data, such as surname, forename, house number, street, voter number and date of 18th birthday. These are all fields within the record.

This concept can be a little difficult to grasp but it is essential to the understanding of how to set up and use a database. To make it easier, some packages such as Multi-Store don't talk of records at all – using the word *card* in its place.

This gives a useful analogy between a database file and a card index. If you imagine each record to be a card in, for example, an address card file with the individual lines of information being fields then you'll get some idea of the concept.


(Untitled) Create Table
Field details
Heading
Type
Size
name
string
41
Heading
Type
OK
Name
Validate
Data
Validate
Validation
Compulsory
Force upper case
Force lower case
List
List
IDE 4
MSDOS::0
To File

Putting in the first field


(Untitled) * Query
name
address
Post code
(Untitled) * Query filter (c) 1990 DSL
name = '%Lamb%'
post_code = 'TT%'

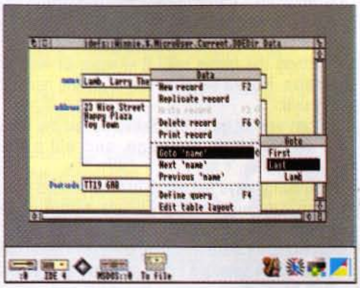
More complex search criteria

Relational and flat-file databases

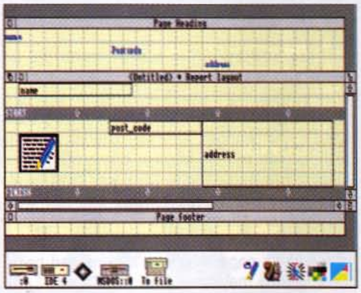
Databases fall into two major categories, relational and flat file. The former allow records in different files to be linked together. Suppose a travel agent decided to use a database to give customers details of their destination. One database might contain information about the resorts, another more general information about different countries.

With a relational database it would be possible to search for Paris to get information about the local attractions and linked data from a country file could tell you that the currency in France is the franc, that the clocks are an hour ahead and that the people speak French.

Flat-files allow you to search your information within certain parameters which you set to form a sub-set of the database. Which database you opt for depends on the applications you have in mind and the size of your bank account.


Data
New record F2
Replicate record
Delete record F6
Print record
Goto 'name'
Next 'name'
Previous 'name'
Define query F4
Edit table layout
Goto
First
Last
Lamb
name
Lamb, Larry The
address
23 Nice Street
Happy Plaza
Toy Town
Post code
TT19 6RB

Simple searching


Page Heading
Post code
address
(Untitled) * Report layout
name
START
post_code
address
FINISH
Page footer

Report generator in action

Reports

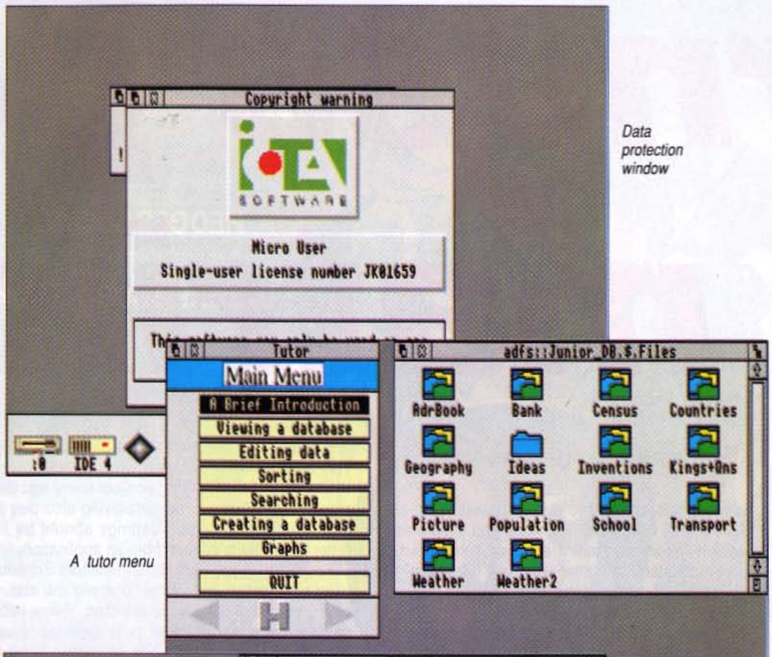
Another important features of databases in general is how the information can be presented on paper. Generally this is done in one of two ways.

Firstly the package will almost certainly have a report generator capable of printing individual records or tables with appropriate headings. Secondly selected data can be saved into another file in a form suitable to load into a wordprocessor or a spreadsheet.

Often all that is required is that information from the database has to be placed into standard letters. This is achieved by selecting the records which satisfy criteria then copying the fields needed for the letter – probably names and addresses – into a file. This data is then merged with the letter by a wordprocessor.

● *By now you'll have realised why a computerised database has so many more uses than a simple card index. Information can be extracted in a variety of ways as well as allowing data to be extracted very quickly when not all the details are known. Next time we'll look at getting the information into the machine.*

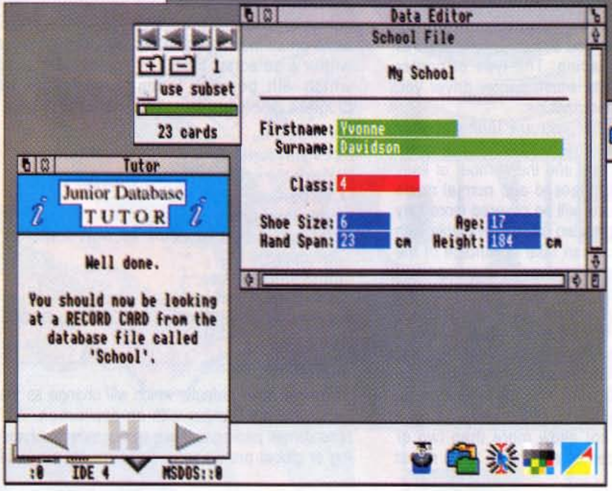
Join John Allen on the start of a journey through fields and files


Copyright warning
i-TA SOFTWARE
Tutor
Main Menu
A Brief Introduction
Viewing a database
Editing data
Sorting
Searching
Creating a database
Graphs
QUIT
adfs::Junior_DB.$.Files
AdrBook
Bank
Census
Countries
Geography
Ideas
Inventions
Kings+Qns
Picture
Population
School
Transport
Weather
Weather2
:0
IDE 4

Micro User
Single-user license number JK01659

Data protection window

A tutor menu


Data Editor
School File
My School
use subset
23 cards
Tutor
Junior Database TUTOR
:0
IDE 4
MSDOS::0

Firstname: Yvonne
Surname: Davidson
Class: 4
Shoe Size: 6
Age: 17
Hand Span: 23 cm
Height: 184 cm

Well done.

You should now be looking at a RECORD CARD from the database file called 'School'.

Following through with the tutor

Privacy safeguards

The Data Protection Act of 1984 was devised to control the computerised collection and use of data about individuals. It's very broad in its application so you have to ensure that you are working within its provisions when you create a database containing information living individuals.

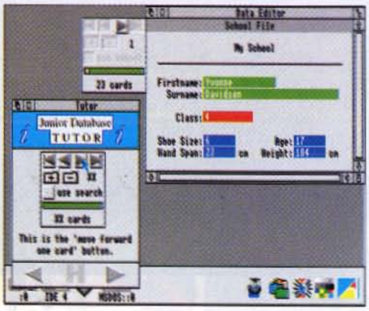
In principle all computerised databases have to be registered and any individual has a right – provided you pay a fee – to apply for a copy of any information held about you on any given database. If you think the information is incorrect you can request it to be changed.

Fortunately some databases do not have to be registered:

- Those used for personal, family or household purposes or for recreation.
- Those which contain data which is only used for calculating and paying wages, keeping accounts, records or purchase or sales to ensure that appropriate payments are made.
- Those which are simple mailing lists and contain very limited information – usually just names and addresses. However, this only applies if none of the individuals included objects to being in the file.
- Personal data held by unincorporated members' clubs – usually a sport or recreational club which is not a registered company. Such a database can only contain information about members and again is subject to the approval of the members.
- Databases which by law have to be public, such as the Electoral Roll.
- Databases which have to be exempt to safeguard national security – this can only be granted by a government minister

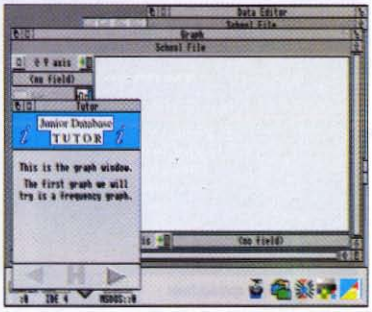
If you are unsure of the guidelines you can obtain a registration pack from a post office or contact:

The Data Protection Registrar
Springfield House
Water Lane
Wilmslow
SK9 5AX
Tel: 0625 535777


Data Editor
School File
My School
Tutor
Junior Database TUTOR
use search
XX cards
23 cards

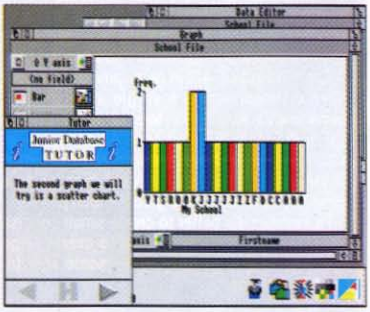
Firstname: Yvonne
Surname: Davidson
Class: 4
Shoe Size: 6
Age: 17
Hand Span: 23 cm
Height: 184 cm

This is the 'move forward one card' button.


Data Editor
School File
Graph
School File
Y axis
(no field)
Tutor
Junior Database TUTOR
(no field)

This is the graph window.

The first graph we will try is a frequency graph.


Data Editor
School File
Graph
School File
Y axis
(no field)
Bar
Tutor
Junior Database TUTOR
Freq.
2
1
0
My School
Firstname

The second graph we will try is a scatter chart.

Harness po

matrix

A SPREADSHEET is the only computer product not to have a pen and paper equivalent. The spreadsheet is an application born of computers. In this series of articles we will be referring mostly to Clare's Schema for the sake of consistency. However, the common ground between all spreadsheet packages is this ability to create a matrix of data and then carry out mathematical functions. For those who are not familiar with spreadsheets Figure I is a small example of a typical spreadsheet.

The information in grey displayed above and to the left of the spreadsheet indicates the row and column references for particular cells within the matrix. A, B, C and so on, indicating the column reference with 1, 2, 3 ... indicating the row reference. In the example the cell containing "Q1" would be referenced as cell D4. The cells containing "1990-1991 Sales Figures" occupy three cells B2, C2 and D2 but because the text is centre justified its reference is C2.

Information can be appear in a spreadsheet in one of four states: Positive, negative or zero digits and text strings. Spreadsheets usually allow each of these items to be set up exactly to meet your particular needs of font, weight, height, width, foreground and background colour.

In this example you'll note that the negative values in cells E5 to E11 appear red because they were set up to display in a red foreground colour. It's also possible to call up brackets around negative numbers (£136.97) as in cells F5 to F11 if a print out is required.

Looking again at the spreadsheet you'll see that although a spreadsheet is a matrix, text strings can overflow horizontally as shown by the title "1990-1991 Sales Figures". You can often use borders around the cells to add emphasis and to clarify key points as well as removing the harshness of a matrix structure.

One feature that makes a modern spreadsheet program easier to use is the ability to create small, manageable spreadsheets which interlink with each other. An ideal way of understanding this concept would be to consider the tracking of timesheets within a company.

Each individual within an organisation would have a timesheet as a single spreadsheet. Departments would then total up these individual spreadsheets on to another spreadsheet and they would have the department name. These department totals would then go to a company spreadsheet to give the total picture.

Remember it's better to create small concise interlinked spreadsheets than to create large spreadsheets which are cumbersome and difficult to manage.

Tailoring a spreadsheet

Software packages try to make the setting up of many of the variables as obvious and simple as possible. However, there are certain items which remain constant no matter what you do and others which will change depending upon the particular task you are undertaking.

Default, or constant items are in most cases to do with the particular hardware that you are using. The type of printer, paper size, amount of memory and also the type of monitor you have all come under this heading. The type of printer should only determine which printer driver you load for your particular machine.

The paper size that you are using in your printer will determine the number of characters you can expect per line and the number of lines per page for both condensed and normal mode printing. These aspects will be covered more fully later. Image printing is also usually available with packages so that you can take advantage of the choice of typefaces, weights and point sizes that are available for Acorn machines.

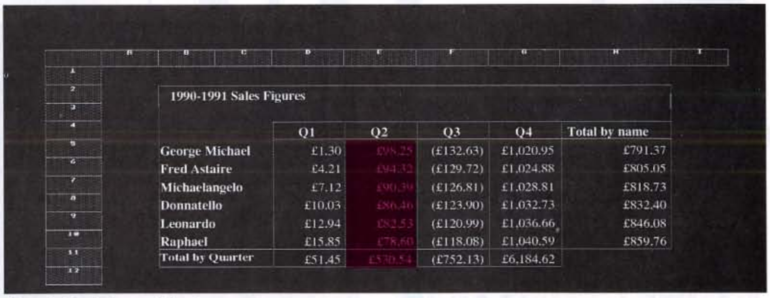
The amount of memory you have in your machine will surely be one of the most important factors in determining the amount of data you can process. The more sophisticated the application the more memory it takes and the less is available for you to use. For example, Schema on a 1Mb machine will not allow more than two or three reasonably sized spreadsheets to be run at any one time. Pipedream 3 and SigmaSheet are very much better in this area.

The type of monitor that you are using and the screen mode that you are employing also play a part in what the default settings should be in order to get the maximum from an application.

For those of you with colour monitors Schema uses blue, green and yellow to depict the status of any cells that have been selected. Yellow indicates a particular block of cells selected, blue indicates a selected cell when it is either within a selected block or when no block is selected, while green indicates a selected cell which is not within a selected block. These are all terms which will become familiar to you as we progress. There are also various shades of grey.

Cell surrounds:
Where the edge of one cell abuts another.
Cell borders:
Lines that can be added to a sheet in order to highlight particular items such as totals or headings.
Input block focus:
A method of moving round a particular block of cells in a user specified order via the Return key

There are other defaults which will change as you become more familiar with an application. With spreadsheet packages these come under the heading of global preferences. Schema, for example,



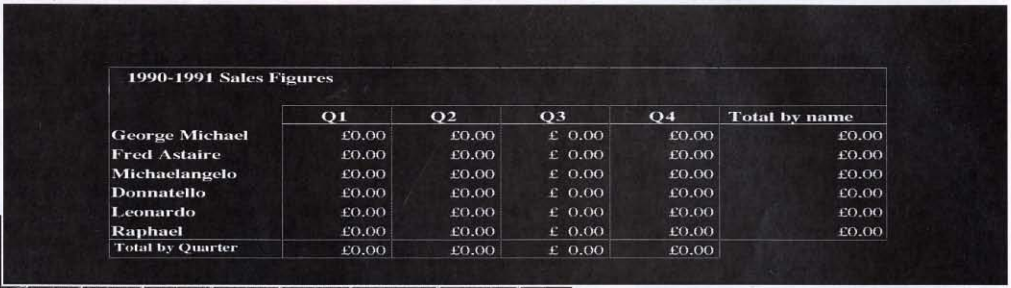
1990-1991 Sales Figures

	Q1	Q2	Q3	Q4	Total by name
George Michael	£1.30	£98.25	(£132.63)	£1,020.95	£791.37
Fred Astaire	£4.21	£94.32	(£129.72)	£1,024.88	£805.05
Michaelangelo	£7.12	£90.39	(£126.81)	£1,028.81	£818.73
Donnatello	£10.03	£86.46	(£123.90)	£1,032.73	£832.40
Leonardo	£12.94	£82.53	(£120.99)	£1,036.66	£846.08
Raphael	£15.85	£78.60	(£118.08)	£1,040.59	£859.76
Total by Quarter	£51.45	£530.54	(£752.13)	£6,184.62	

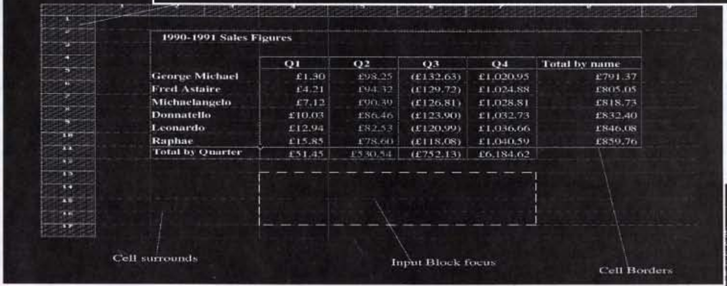
Figure I: A typical spreadsheet

Barry Mallett explores the world of cells and settings

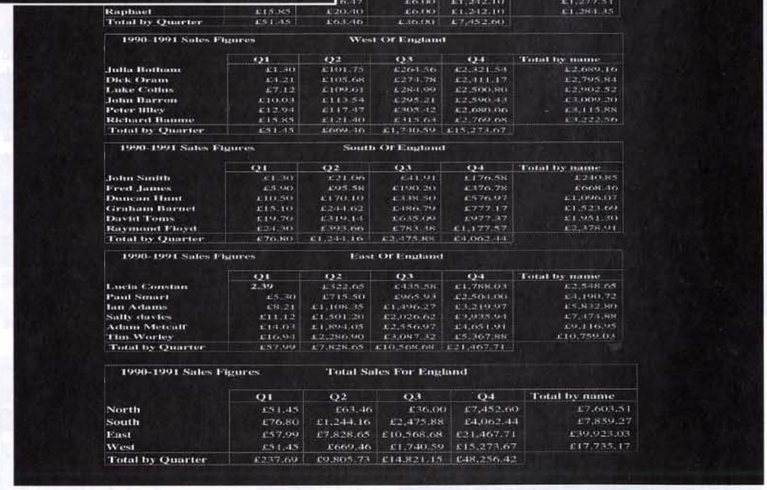
ower of the



1990-1991 Sales Figures					
	Q1	Q2	Q3	Q4	Total by name
George Michael	£0.00	£0.00	£ 0.00	£0.00	£0.00
Fred Astaire	£0.00	£0.00	£ 0.00	£0.00	£0.00
Michaelangelo	£0.00	£0.00	£ 0.00	£0.00	£0.00
Donnatello	£0.00	£0.00	£ 0.00	£0.00	£0.00
Leonardo	£0.00	£0.00	£ 0.00	£0.00	£0.00
Raphael	£0.00	£0.00	£ 0.00	£0.00	£0.00
Total by Quarter	£0.00	£0.00	£ 0.00	£0.00	



1990-1991 Sales Figures					
	Q1	Q2	Q3	Q4	Total by name
George Michael	£1.30	£98.25	(£132.63)	£1,020.95	£791.37
Fred Astaire	£4.21	£94.32	(£129.72)	£1,024.88	£805.05
Michaelangelo	£7.12	£90.39	(£126.81)	£1,028.81	£818.73
Donnatello	£10.03	£86.46	(£123.90)	£1,032.73	£832.40
Leonardo	£12.94	£82.53	(£120.99)	£1,036.66	£846.08
Raphae	£15.85	£78.60	(£118.08)	£1,040.59	£859.76
Total by Quarter	£51.45	£530.54	(£752.13)	£6,184.62	



North Of England					
	Q1	Q2	Q3	Q4	Total by name
			£6.00	£1,242.10	£1,250.15
			£6.00	£1,242.10	£1,256.99
			£6.00	£1,242.10	£1,263.83
			£6.00	£1,242.10	£1,270.67
			£6.00	£1,242.10	£1,277.51
Raphael	£15.85	£20.40	£6.00	£1,242.10	£1,284.35
Total by Quarter	£51.45	£63.46	£36.00	£7,452.60	

1990-1991 Sales Figures	West Of England				
	Q1	Q2	Q3	Q4	Total by name
Julia Botham	£1.30	£101.75	£264.56	£2,421.54	£2,689.16
Dick Oram	£4.21	£105.68	£274.78	£2,411.17	£2,795.84
Luke Collus	£7.12	£109.61	£284.99	£2,500.80	£2,902.52
John Barron	£10.03	£113.54	£295.21	£2,590.43	£3,009.20
Peter Illey	£12.94	£117.47	£305.42	£2,680.06	£3,115.88
Richard Baume	£15.85	£121.40	£315.63	£2,769.68	£3,222.56
Total by Quarter	£51.45	£609.46	£1,740.59	£15,273.67	

1990-1991 Sales Figures	South Of England				
	Q1	Q2	Q3	Q4	Total by name
John Smith	£1.30	£21.06	£41.91	£176.58	£240.85
Fred James	£5.90	£95.58	£190.20	£376.78	£668.46
Duncan Hunt	£10.50	£170.10	£338.50	£576.97	£1,096.07
Graham Barnet	£15.10	£244.62	£486.79	£777.17	£1,523.69
David Toms	£19.70	£319.14	£635.09	£977.37	£1,951.30
Raymond Floyd	£24.30	£393.66	£783.38	£1,177.57	£2,378.91
Total by Quarter	£76.80	£1,244.16	£2,475.88	£4,062.44	

1990-1991 Sales Figures	East Of England				
	Q1	Q2	Q3	Q4	Total by name
Lucia Constan	2.39	£322.65	£435.58	£1,788.03	£2,548.65
Paul Smart	£5.30	£715.50	£965.93	£2,504.00	£4,190.72
Ian Adams	£8.21	£1,108.35	£1,496.27	£3,219.97	£5,832.80
Sally davies	£11.12	£1,501.20	£2,026.62	£3,935.94	£7,474.88
Adam Metcalf	£14.03	£1,894.05	£2,556.97	£4,651.91	£9,116.95
Tim Worley	£16.94	£2,286.90	£3,087.32	£5,367.88	£10,759.03
Total by Quarter	£57.99	£7,828.65	£10,568.68	£21,467.71	

1990-1991 Sales Figures	Total Sales For England				
	Q1	Q2	Q3	Q4	Total by name
North	£51.45	£63.46	£36.00	£7,452.60	£7,603.51
South	£76.80	£1,244.16	£2,475.88	£4,062.44	£7,859.27
East	£57.99	£7,828.65	£10,568.68	£21,467.71	£39,923.03
West	£51.45	£669.46	£1,740.59	£15,273.67	£17,735.17
Total by Quarter	£237.69	£9,805.73	£14,821.15	£48,256.42	

allows you to decide whether or not a dialogue box appears when overwriting a file – saving a file to a file that already exists. For those who are familiar with Risc OS this dialogue box may appear irksome but for a novice the ability to confirm that the file about to be overwritten is the correct operation, may be critically important.

The use of numerals to indicate row and letters to indicate column is a classic method of referencing cells in a spreadsheet. Certain people may prefer row as a digit and column also as a digit – see Figure I – and this should be set up as a default.

I would like you to consider the concept of a stationery cupboard as a good principle to adopt when creating new spreadsheets. When designing your spreadsheet you define width of columns and height of rows, the right number of rows and columns, the font, weight, size, style and also the correct picture or cell display. Experimenting with these parameters will allow you to create a spreadsheet that meets your needs aesthetically and practically.

Looking at the final illustration you'll see an example of a sheet being utilised five times for creating a workspace depicting the Sales Figures for the various sales people of an imaginary company in the South, North, East and West of England plus a Totals sheet indicating the total sales for this company in England during the period 1990-1991.

As the sales figures for each individual sales person are entered the spreadsheet is updated and all the consolidation is automatically carried out via the links between them. Enter the data in one position and the related totals on all sheets are automatically updated.

The printed output is one of the items to be considered when defining a spreadsheet's physical size. It is also, in my experience, an area that has not been addressed adequately by any spreadsheet package other than perhaps Excel on the IBM PC and Apple Macintosh.

The amount of information that can be got on to a page is very much a matter of trial and error especially when varying the font sizes, as well as the cell widths and heights. Pipedream 3 does go some way to dealing with this when using the system font as it displays markers for page breaks.

Objective route to graphics

UNLIKE painting packages for the Archimedes, CAD packages use picture information in a different way. !Draw to be found on Applications Disc 1 is not a fully functional Computer Aided Design (CAD) package. But it does have tremendous possibilities for CAD work as well as excellent facilities for working with text and pixel-based graphics so it is a good starting point for this series of articles.

Where painting packages store of the colour of each pixel, CAD programs store information about objects. If you have a box on screen the computer stores information relating to the position of the two diagonal corners and the thickness and colour of the line.

This has two advantages, it takes up much less space than a similar image created in a paint package and more importantly the objects can be resized, edited and enlarged without any loss of definition.

For instance, if you enlarge a circle with a paint program the edges become chunkier and lose detail. However, with CAD the line is exactly the same quality and thickness as the original. All objects produced using !Draw can be edited at any time rather than having to be wiped out and redrawn whenever a change is required.

Another aspect of CAD is that the packages are often designed to work with plotters using a pen or pens to draw an image, rather than the print head of the dot matrix or ink jet printer which outputs dot by dot.

Plotters produce very high quality results with perfectly smooth curves using a variety of pens. However, you can produce very good results using the printer driver supplied on your applications discs.

First of all we're going to go through the construction of a drawing to illustrate some of the main principles. Not only will this introduce you to the facilities of !Draw, but it'll also supply us with some ready-made artwork.

This will come in handy in later articles when you'll be producing letterheads and business cards using artwork and text in combination for some snappy graphic design work.

Now load up !Draw in the usual manner. You should have an <untitled> window in the centre of the screen with a frame round three sides and a menu down the left-hand side.

Enlarge the drawing window to the full screen size and then move the window up to reveal the icon bar – this makes saving your work easier, as you can see the disc drive.

Setting the limits

The first thing to do when starting a new drawing is to set the paper limits. Click Menu inside the drawing window and by selecting Misc you'll eventually find the paper limits menu. The options Portrait and A4 allow you to work on a vertical drawing – choose the A4 option.

If you load the printer driver for your machine – probably !PrinterDM or !Printerlx – you'll see a grey border at the top and right of the drawing window. Loading takes two stages, and it appears as an icon on the icon bar.

You can copy the printer driver on to a separate disc rather than make changes to the Applications Disc.

You'll be saving your drawings at regular intervals, so to practise choose *save as* from the menu and in place of the default name type, A4 PORTA3000 – an A4 portrait of the Archimedes – and drag the icon to your disc Filer window.

To start the drawing create two rectangles to represent the computer and monitor. You can do this via the menu button or by clicking on the toolbox directly.

It's a good idea to switch on the gridlock at this stage – found by selecting grid from the draw menu. *Show* will let you what the layout looks like.

We'll be using one tenth of an inch spacing with the first three rectangles. The point about the grid is that it is easier to line up objects as they snap to the nearest grid intersection saving your fine adjustment. Once you're happy with the grid setting *Show* can be turned off.

Clicking Select somewhere in the top left of the drawing window and moving the pointer down and across will give you a rectangle of the same proportion of the monitor in grey.

Press the Select button when you're happy with the rough shape and size. The rectangular icon will then turn black and be fixed.

If you press Adjust instead of Select at this point with !Draw will change to path Edit mode giving you a grey outline as well but with a light blue edit control point at each corner – this will be dealt with later.

It doesn't matter if the picture isn't right at this stage as shapes can be moved, resized, and edited to get the final result. If you look at the last illustration you may notice some rectangles can be seen through others, while some blank out the one underneath.

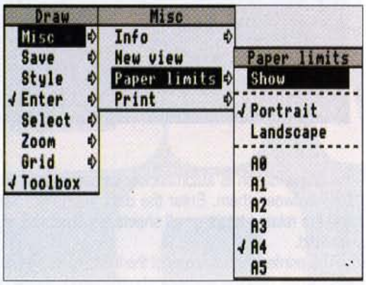
Select the rectangle in your drawing and it will change to a dotted outline with a red square at the top and bottom of the right hand edge.

Drag the right *ear* with the select button and it will rotate. Move on to the bottom ear and you'll be able to resize it. Choosing style gives access to the Fill option. If you select white from the colour menu the rectangle will become white and obscure everything underneath, while None is the default.

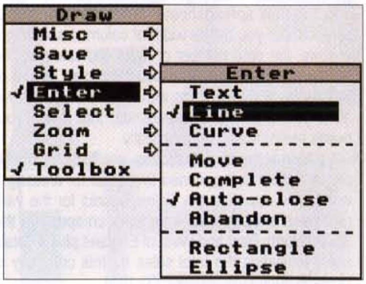
Try to construct the drawing of your computer in as much detail as possible using lines and rectangles. if you can't get the detail you require with the grid setting try selecting a finer setting on a new drawing.

If the rectangles and lines are the wrong shape select Enter while inside the shape or line to get back to the Path Edit mode.

You can now use Adjust to move the light blue edit point to a new position. The Editing point will

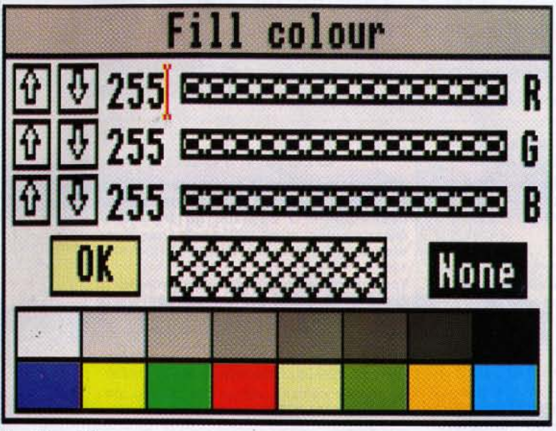


Finding your limits

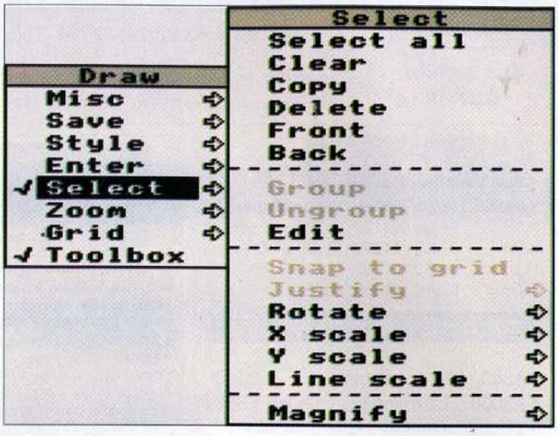


Choosing line drawing from a menu

Lay down your pen and pick up your mouse! Let Steve Bruntlett show you how to join the fascinating world of CAD


Fill colour
255 R
255 G
255 B
OK
None

The Colour Picker


Draw
Misc
Save
Style
Enter
Select
Zoom
Grid
Toolbox
Select
Select all
Clear
Copy
Delete
Front
Back
Group
Ungroup
Edit
Snap to grid
Justify
Rotate
X scale
Y scale
Line scale
Magnify

The Edit selection menu

turn red when you click Adjust so that you know which edit point is active. The new shape will turn black when you press the Select button again, fixing the object in place. If you are trying to edit one object inside another just keep clicking Adjust until the object you want is shown with the four blue edit points.

Moving a rectangle or line – or any other object – is done by choosing Select from the Draw menu and pressing Select inside the shape to obtain a dotted outline.

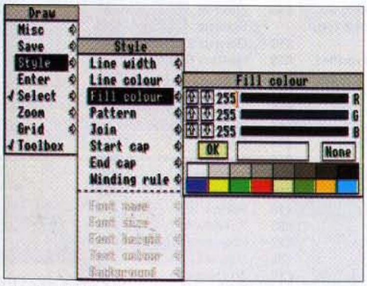
If you now press Select and keep it pressed the corners will turn cream and allow you to drag the shape around. Letting go fixes it in place.

If you're trying to move one object from inside another keep clicking Select until only the one you want has a dotted outline or you may move multiple parts of the drawing instead.

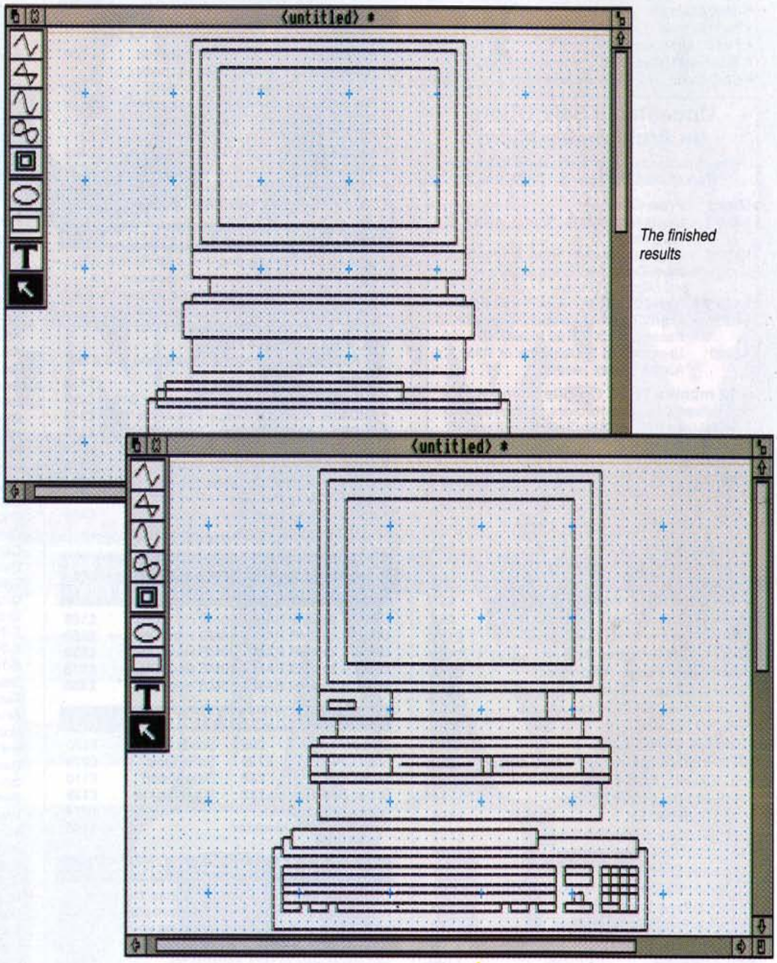
Deleting is carried out on the Draw menu, but again check that only the one you want is highlighted.

Do remember to save your work on a regular basis and if you're really adventurous you could experiment with line thicknesses and endings, or figure out how to put a picture on the monitor you've just drawn.

● **NEXT MONTH:** *Continuing with !Draw we'll add detail and design a business card*


Draw
Misc
Save
Style
Enter
Select
Zoom
Grid
Toolbox
Style
Line width
Line colour
Fill colour
Pattern
Join
Start cap
End cap
Winding rule
Font name
Font size
Font height
Text colour
Background
Fill colour
255 R
255 G
255 B
OK
None

Altering the fill colour



The finished results

Watford Electronics

(A member of the Jessa group of Companies – Established 1972)

Jessa House, 250 Lower High Street, Watford WD1 2AN, England
Tel: Watford (0923) 37774 Tlx: 8956095 Fax: (0923) 33642

The sign of Quality

Acorn

The choice of Experience

Shop Hours: 9am to 6pm (Mon.-Sat.) Thursday 9am to 8pm. FREE customer car park.
All prices exclusive of VAT; subject to change without notice & available on request.

Archimedes micro

System	Basic	Mono	Colour	Multiscan
410/1	£1099	£1159	£1278	£1448
420/1	£1299	£1359	£1478	£1648
440/1	£1699	£1759	£1878	£2048
540/1	£2995	£3065	£3178	

Archimedes A3000

12 MONTHS FREE MAINTENANCE ON SITE

A3000 Microcomputer	**£599**
A3000 + Learning Curve pack	**£699**

3.5" External Drive	£99
Monitor Stand	£16
External Podule Case	£13
User/Analogue Port Upgrade	£42
Serial Upgrade	£17
Technical Manual	£60
SCSI Card	£149
Dust Cover Micro only	£5
Dust Cover for Micro + Monitor	£9
User port/MIDI upgrade	£45
UHF TV Modulator	£30

Unbeatable Sale Offers on Archimedes Micro

When you purchase an Archimedes Micro from Watford, look what you get FREE with it

Micro	Free Offer
A410/1	Upgraded to 2MB RAM & 44MB IDE Hard Drive
A420/1	Upgraded to 4MB RAM & 100MB IDE Hard Drive, MkII Learning Curve pack incl. Acorn DTP pack
A440/1	High Res 14" Multiscan Colour Monitor
540/1	High Res Multiscan Monitor & Panasonic KX-P1180 Printer
A3000	Upgraded to 2 Megabyte of RAM & a A3000 Monitor plinth.

+ 12 months FREE On-Site Maintenance

(P.S. Instead of the above Hardware upgrades on A410/1 & A420/1, we will fit the 30MHz Turbo Board if required. Please specify your requirement when ordering.)

Archi Accessories

NEW Multitasking RISC OS	£29
3.5" 800K 2nd Floppy Drive (305/310)	£118
5.25" 800K external Floppy Drive	£85
I/O Podule (with Analogue port, User port, & 1MHz bus)	£76
MIDI add-on to I/O Podule	£27
MIDI Expansion Card	£65
Sound Sampler Mono (Armadillo)	£129
Sound Sampler Stereo /Midi (Armadillo)	£186
Chromalock Podule (Wild Vision)	£275
Econet Network Board	£44
Archimedes IEEE Interface Adaptor	£269
Dual RS232 Podule	£195
16 bit parallel I/O Card	£195
Archi replacement mouse – New design	£32
PC Emulator NEW Faster Version	£85
Software Developers Toolbox	£149
Floating Point Unit	£455
SCSI Adaptor Expansion Card	£162
Keyboard Extension Lead	£6
2 Podule Backplane	£25
4 Podule Backplane	£38
Fan for above backplanes	£8
Risc Os Extras Software Disc	£5
Smoked Perspex Low profile Keyboard Cover	£8
Ethernet Card	£220

8 Meg RAM Upgrades

R810 – A410/1 upgraded to 8MB	£599
R820 – A420/1 upgraded to 8MB	£569
R840 – A440/1 upgraded to 8MB	£499
R814 – R140 upgraded to 8MB	£499

Turbo Charge Your Archimedes

Watford's ARM 3 board increases the speed of your Archimedes by a factor of 3 to 6.

ARM-3 Upgrade Board	£299
MEMC 1A Upgrade	£42

(ARM 3 price includes a FREE Chip extraction tool)

(Special Offer – If purchased together with an Archimedes Micro, then not only will we fit the card Free of Charge but we will also reduce the price by £25 i.e. You pay only **£274** for ARM3 Board

Archimedes RAM Upgrade

All our memory upgrades are simple to fit. No soldering required. Fitting instructions supplied.

R302-A3000 – to 2MB RAM Upgrade	£39
R303-A3000 – to 2MB RAM Upgrade (expandable to 4MB)	£69
R304-A3000 – to 4MB RAM Upgrade	£159
R311-A305 – to 1MB RAM Upgrade	£50
R312-A305/310 – to 2MB RAM Upgrade	£215
R314-A305/310 – to 4MB RAM Upgrade	£405
R412-A410/1 – to 2MB RAM Upgrade	£35
R413-A420/1 – to 4MB RAM Upgrade	£64
R414-A410/1 – to 4MB RAM Upgrade	£98

Archimedes Hard Disc

Watford's ST506 Hard disc drives for A310 & A410 series fit internally into the space provided. The 'simple to follow' fitting instructions supplied makes drive fitting very easy. All disc drives are auto parking. 40Meg & 53Meg drives are fast 24mS type, while 20MHz are 28mS.

P.S. A310 upgrades require a backplane and a fan.

3HDP – Hard Disc Podule only	£135
3HD20 – 20Meg H' Disc + Podule for 310	£235
3HD40 – 40Meg H' Disc + Podule for 310	£345
3HD50 – 53Meg H' Disc + Podule for 310	£474
4HD20 – 20Meg Hard Disc for 410	£129
4HD40 – 40Meg Hard Disc for 410	£215
4HD50 – 53Meg Hard Disc for 410	£335
A3000 20Meg Hard Disc + Podule	£299
A3000 40Meg Hard Disc + Podule	£429

IDE HARD Disks: See page 14 of our advert.

Convert your Archi 410 to a 420 or 440 with Watford's unique Upgrade Kits

UP10 – to 2MB RAM + 20MB Hard Disc	£165
UP15 – to 2MB RAM + 40MB Hard Disc	£252
UP20 – to 4MB RAM + 20MB Hard Disc	£232
UP30 – to 4MB RAM + 40MB Hard Disc	£318
UP40 – to 4MB RAM + 53MB Hard Disc	£438

Silicon Vision

Gerber Plot	£95
Solid CAD	£120
Super Plot	£28
Super Dump	£22
Solids Render	£120
Solid Tools	£279
Data Vision	£110
Share Holder	£135
Arc PCB Professional	£275
Realtime Solids Modeller	£136

Archi Mouse Port Splitter

Our handy little splitter unit eliminates the risk of damaging your micro due to constant plugging and unplugging of the mouse by allowing you to connect both, a joystick and a mouse simultaneously to your Archimedes. **£15**

Stop Press

After months of secret development, Watford Electronics are proud to launch their highly desired ARM 3 Upgrade for the A3000 microcomputer at the BBC Acorn User Show, Wembley Conference Centre, in October 1991.

You are invited to preview this exceptional board on our stand. Our technical staff will be in attendance.

0% Finance

By popular demand, we are now able to offer 0% Finance on A3000 Learning Curve Pack.

Graphics, Art, Design & Games

GRAPHICS

Atelier	£65
Artisan II	£45
Artisan Gallery	£16
Autosketch II	£65
Craftshop 1 & 2	£28
Euclid 2	£50
Graph Box	£59
HotLink Presenter	£40
Kermit	£46
Mogul	£17
Poster	£79
Pro Artisan	£70
Render Bender	£58
Snippet	£21
Tween	£21

GAMES

ArcPinball	£18
Apocalypse	£15
Arcade 3 Compil.	£12
Arcade Soccer	£15
Arc Pinball	£18
Arc Trivia	£18
Avon	£16
Ballerina	£14
Blowpipe	£16
Boogie Buggy	£19
Break 147	£19
Bug Hunter	£14
Caverns	£14
Chess 3D	£14
Chocks Away	£14
Conqueror	£18
Cops	£14
Corruption	£18
Crisis	£21
Drop Ship	£12
Enthar Seven	£21
E-Type	£13
E-Type Designer	£13
E-Type Extra 100 miles	£13
Family Favourites	£15
Fireball 2	£19
Holed Out Designer	£13
Holed Out Golf	£13
Hostages	£15
Ibix the Viking	£14
Inertia	£13
Inter Dictor 2	£26
Iron Lord	£15
Jet Fighter	£10
Jiglet	£25
Jigsaw	£27
Magpie	£39
Man at Arms	£16
MahJong Patience	£15
Manchester United	£19
Nevryon	£14
Olympics	£15
Pipe Mania	£17
Pirate	£16
Power Band	£18
Puncman 1 & 2	£16
Puncman 3 & 4	£16
Pysanki	£15
Real McCoy	£22
Real McCoy 2	£23
Redshift	£14
Return to Doom	£16
Revelation	£54
Repton 3	£15
Rotor	£19
Splice	£25
Sporting Triangles	£24
Star Trader	£14
Superior Golf	£15
Super Pool	£19
Talisman	£12
The Pawn	£19
Thundermonk	£11
Timewatch	£24
Trivial Pursuit	£22
Twin World	£15
U.I.M.	£23
White Magic	£15
White Magic 2	£15
Wimp Game	£15
Worldscape	£16

Miscellaneous

Ancestry	£59
Arccomm 2	£38
Arcterm 7	£64
Armadeus Sound	£60
BBC DFS Reader	£6
Broadcaster Loader	£65
Equasor	£40
FlexiFile	£98
Genesis	£65
Genesis 2	£113
Hearsay Comms Pack	£50
Investigator 2	£22
JX Archi Colour Printer Driver for Citizen & Star	£15
Numerator	£66
Presenter 2	£35
Presenter Story	£145
Rainforest	£17
Revelation	£58
Rhapsody in Blue 2	£45
Speech!	£15
The Victorian	£17
Toolkit (Clares)	£35
Touchtype	£40
Tracer	£46

LANGUAGES (Archimedes)

ISO-PASCAL; FORTRAN 77			£77 each
Assembler; LISP; Prolog X			£149 each
ANSI C Rel. 3	£125	BASIC Compiler	£77
Cambridge Pascal	£60	Logotron Logo	£45
Macro Assembler	£40	Risc Basic	£120
Robo Logo	£69	Risc FORTH	£110

Minerva's Archimedes Software

Home Accounts*	£36	Sales Ledger*	£53
Stock Manager*	£53	Purchase Ledger*	£53
Nominal Ledger*	£53	Reporter	£29
Ancestry	£59	Mailshot*	£29
System Delta+	£55		
System Delta + Reference Manual			£25
Order Processing/Invoicing*			£53
School Administrator			£118

** Requires System Delta*

NEW Business Accounts Packages
Nominal Ledger, Order Processing/Invoicing, Purchase Ledger, Sales Ledger & Stock Control
Price: **£78** per Module or
£299 for the complete Software Suite

ULTIMUM – Archimedes A3000 Podule Racking System

THE ONLY LOGICAL WAY TO EXPAND YOUR A3000 COMPUTER

The accepted standard for Archimedes computer expansion is the Acorn Podule, designed initially to fit the old 310, and also for the later A400 and A400/1 series micros. The podules fit inside these computers up to four at a time. The A3000 is the little brother of the family, but can only have one podule at a time, plugging into the back of the computer.

Other attempts have been made to expand the A3000 by trying to introduce a 'mini-podule'. This is impractical for many reasons, amongst which is the reluctance of manufacturers to produce them. Nobody wants to re-design podules already produced. Some cannot be produced on a 'mini-podule' as they are far too complicated and simply wouldn't fit.

Watford Electronics listens to the demands and requirements of its customers, and we are glad to say that we have come up with the only real solution to the A3000 expansion problem. The ULTIMUM Podule Racking System allows up to three FULL SIZE standard Archimedes 300/400 series podules to be fitted to the computer. In addition, there is also provision for a hard disc drive and a podule to be fitted internally.

Since the ULTIMUM Podule Racking System takes proper full size podules, you will be able to use any of the currently available peripheral equipment, from companies like Computer Concepts, Armadillo, Acorn and of course, our own brand.

Fitting the podules to 'ULTIMUM' is simple. They are neatly fitted inside the metal case of the rack, avoiding the previously untidy method of hanging the podule off the back of the computer, risking damage to both, it and to the computer.

'ULTIMUM' has its own power supply, so no strain is put on the A3000 power supply. There is also an IEC mains output socket for an Acorn type monitor so reducing the number of plugs required to go to the mains. The ULTIMUM is rigidly clamped over the top and under the computer, and allows direct access to the floppy disc drive and reset button, rather than obstructing access as on other systems. The mounting method employed is so firm that the computer could even be safely transported without the assembly falling apart.

Price: £125

Archimedes A300/A400 SCSI Hard Disc Offer

(while stocks last)

100MB Hard Disc Upgrade complete with Controller card, Cables, Formatter and Manuals

RRP: £999

Offer Price: £399

Archimedes to BBC Serial Link Mk 2

Using this simple data link, it is possible to solve all your BBC to Archimedes data transfer problems. The kit is supplied with a disk, and the necessary cable to connect the two computers.

New RISC OS Version **Only £15**

Archimedes External Disc Drive Interface

With this interface it is possible to connect almost any 5.25"/3.5" disc drive with its own power supply to the Archimedes. Upto 4 disc drives can be connected. Fully Buffered Board. NO SOLDERING is involved. Supplied complete with necessary lead.

- A300/A3000 £21
- A400 £25

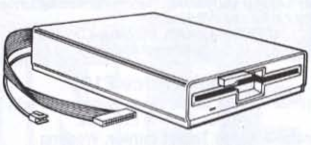
Special Education Prices

All education establishments qualify for special education prices on micros, etc. Please write in or telephone (0923) 37774 or 50335 for written quotation.

BBC MASTER

MASTER 128K Micro incl. Acorn's View, Viewsheet, ADFS, BASIC Editor & TERMINAL plus FREE OFFER (see below) **£399**

FREE OFFER



A 5.25" Double Sided, 40/80 track switchable 400K Disc Drive complete with cables and a Utilities disc incl. 2 games, plus

Gemini's OFFICE MATE & OFFICE MASTER packages on Disc consisting of: Database, Spreadsheet, Beebplot graphics. Accounts packs: Cashbook, Final Accounts, Mailist, Easyledger, Invoice & Statements, Stock Control.

FREE with every BBC Master purchased from us during September

ADD-ONs & ACCESSORIES

Turbo 65C102 Add-on Module	£115
Econet Module for the Master	£45
Twin ROM Cartridge for Master	£9
Quad ROM Cartridge for Master	£14
Master Reference Manual I	(No VAT) £14
Master Reference Manual II	(No VAT) £14
Master Advance Ref Manual	(No VAT) £17
64K Upgrade Kit for B+	£32
Acorn 1772 DFS Kit complete	£49
ECONET Upgrade Kit for BBC B	£42
ALL ECONET UPGRADES Available	
ARIES' IEEE Interface for BBC B & Master	£238
Morley Teletext Adaptor with ATS Rom	£99
Ecolink	£270

Staff Vacancy

Due to recent changes in our pioneering R & D Department, we now have exciting new vacancies for an Archimedes Hardware designer and a machine code software engineer to join our team in developing Watford's innovative Archimedes products.

If you have an in-depth knowledge of the computer's hardware and/or are well versed in Archimedes machine code, why not awrite in and send us your CV, or call Keith Archer or Shiraz Jessa for an interview.

Desk Top Publisher

Acorn's Archi DTP Package	**£108**
Impression 2 DTP Pack	**£130**
Impression Junior	**£72**
Tempest DTP Package	**£90**

Archimedes New Product Launch See Pages 2, 5 & 14

Archi Wordprocessors

Pendown Archi	£48	Archie Spell Master	£25
Wordwise + Disc	£24	PD Spellchecker	£40
Image Writer	£25	View	£45
Interword Disc	£24	Graphic Writer	£19
1st Word Plus – 2	£63	EasyWord	£30

Databases

AlphaBase	£36	Multistore	£195
Knowledge Organiser	£42		

Spreadsheets

Intersheet Disc	£24	Viewsheet	£45
Sigmasheet	£39	Schema	£89

Business Graphics

GammaPlot	£39	Sigmaplot	£39
Interchart Disc	£17		

Integrated Packages

- Logistix £79
- Pipedream 3 £119
- Desktop Office – Database, Graphs & Charts, Wordprocessor Spreadsheet, Communications £98
- Desktop Folio – Wordprocessor, Desktop & Interactive Publishing. Ideal for school environment. £85

NEW

A3000 BBC User, I/O Card, Analogue Port IIC Card

This NEW versatile I/O Card from Watford, fits inside the A3000 and includes an Analog to Digital Converter, a User Port, and an InterIC (IIC) connector.

The card allows many of the peripherals developed for the BBC to be used with the Archimedes A3000. The ADC and User Port have the same pin out and connectors as the BBC computers.

Extensive RISC OS software is supplied to provide BBC OSBYTE calls for support of the ADC and User Ports, including the BASIC keyword ADVAL. The software provides extended RISC OS support for separate interrupts from both the ADC and User Ports, permitting easy interrupt driven operation.

The card is provided with all the software in ROM and is automatically loaded when the machine is turned on.

Peripherals connected to the ports can obtain up to 500mA of power at +5V. A fuse is fitted to the card to protect the A3000 from damage arising from accidental short circuit of the power output.

The card is provided with an extensive manual explaining installation, all software commands, connector pin outs, hardware addresses and example programs.

Features

- An 8 bit User Port with a standard 20 way IDC connector, compatible with the User Port on the BBC computers and the Archimedes I/O Podule.
- A 10 bit Analog to Digital Converter with a standard 15 way D type connector, compatible with the ADC on the BBC range of computers and the Archimedes I/O podule.
- An InterIC (IIC) Port with a 5 pin DIN socket to connect the A3000 to external IIC devices.

£42

Continued→ → → → → → → → →

Archi A4 Scanner

ARIES FAX LINE

This most advanced Archi A4 image scanner is supplied complete with ROM based podule software. Features provided include facilities for zooming in on an image and inverting the image in X and Y directions, saving and printing of the sprite created. Interactive help is supplied using the !HELP application on the Acorn applications discs.

The 216mm scanning width can cope with both desktop scanning of single sheets, photographs, diagrams, etc., with its fast ten page automatic document feeder, but it can also detach from the feeder to become a convenient hand-held full page scanner for larger documents or pictures.

Scanned image control can be freely adjusted in increments of 10 dots per inch from 100 up to 400 dpi resolution with 64 levels of grey scaling. A built in shading controller and manual brightness control achieve optimum image clarity.

Unlike some scanners, which use a red light source, the Watford scanner uses a yellow/green source which vastly improves the light/dark contrast, thus eliminating the effect where any red-based colours are faded down to white and so do not show up in the scanned image.

All these features and facilities combine to make the Archi Page Scanner the fast and convenient way in which to add that extra impact, interest and clarity to documents, reports, instruction sheets, manuals, news letters, etc., from your Archimedes DTP package.

New Low Prices:

Archi A4 Scanner	£349
Sheet Feeder for above	£95
Scanner + Sheet Feeder	£419

(Dealers Inquiry welcome)

Z88 Portable Micro

£185

FREE

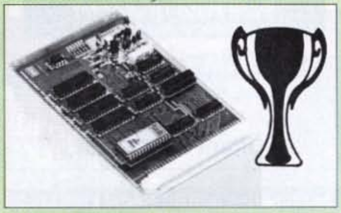
With every Z88 purchased from us, we are giving away absolutely FREE, a Z88 to BBC Interface Link, 4 rechargeable batteries and a compact Mains Battery Charger worth £38.

Z88 ACCESSORIES

• 32K RAM Pack or 32K EPROM Pack	£18.00
• 128K RAM Pack or 128K EPROM Pack	£42
• 512K RAM Pack	£175
• Z88 Eprom Eraser Unit	£33
• Z88 Spellmaster for Pipedream	£40
• Z88 Carrying Case	£8
• Z88 Computing Book	£9.95
• AA Nicad Rechargeable Battery	£1.50
• Battery Charger Compact & Fast	£6
• Z88 Serial Printer Cable	£8
• Z88 Parallel Printer Cable	£25
• Z88 to Archi Link	£15

• Z88 to BBC Link	£20	• Z BASE	£56
• Z88 to PC Link II	£30	• Z TAPE	£42
• Z88 to Macintosh	£52	• Z TERM	£42
• Z88 Mains Adaptor	£9	• Z88 Modem	£149

Archi Real-Time Digitiser



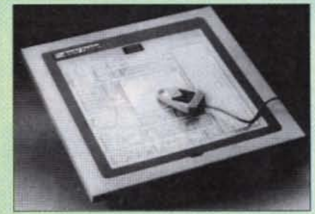
Now supplied with NEW RISC OS Version Software

Watfords' Archimedes Video Digitiser is the most sophisticated digitiser ever designed for a micro. It provides a fast and flexible means of capturing images from a video camera or recorder for display and manipulation on the Archimedes range of Micros. Off-air televison signals may also be digitised via a video recorder or TV tuner. Please write for further details.

Price £175

A Set of Colour Filters for colour image grabbing using a video camera	£16
New Risc-OS Software Upgrade	£39

Archi Graphic Tablet



The Archi Graphic Tablet offers performance and accuracy comparable to other tablets priced at well over £400, and has the useful addition of a liftable cover, which can hold tracing material or menu templates securely. The package is supplied complete with sophisticated Archi software. (Now, fully LinCAD compatible. Recommended by Linear Graphic for use in Education).

(FREE this month, PC Mouse Drivers & Art package)

Special Price £199

(Price includes Tablet, Leads, Software & Puck)
Stylus Optional Extra **£15**

Archi Graphic Tablet Junior. Working area 9" x 6". Price includes Stylus **£125**

Disc Plonker Rack

When using ones micro, there is a tendency to have more than one Disc on the desk. This exposes them to the hazards of fingerprints, scratches, dust, coffee and an untidy desk. Why not protect your valuable data from all these hazards with the help of our extremely handy and low cost DISC PLONKER RACK. Holds up to eight 5.25" discs.

Protection at Only: **£2**

Acorn & Watford DFSs

• Watford sophisticated DFS ROM	£16.00
• Watford DFS Kit complete	£69.00
• We will exchange your existing ROM for Watford's ultimate DFS ROM at only	£12.00
• DFS Manual (comprehensive)	£6.95
• Acorn DNFS ROM	£17.00
• Acorn ADFS ROM only	£25.00
• Acorn 1772 DFS ROM Kit	£49.00

(The single Density DFS system is now old technology. Like Acorn, Watford too have decided to replace it with the their more up-to-date 1770 DDFS interface. We have informed most of the software houses of this decision in order that they can ensure compatibility with our highly sophisticated and fully Acorn compatible DDFS).

Watford's MkII 1772

Single/Double Density DFS

Many of our customers have wanted to use our superior DDFS and Acorn ADFS together. Now our Mk II DDFS Board with its 1770 Disc Controller, has been adapted to allow the use of Acorn ADFS as well. It also has all the commands of the Acorn's 1770 DFS, plus the added features.

Added features include:

- Acorn ADFS compatible – Use ADFS on our DDFS board.
- Tube host Code – No longer any need to have the DNFS in your machine to use Co-Processors, even the CoPro and Master 512.
- Auto 40-80 Track sensing – no need to fuss with 40/80 track switches (even works with protected disks).
- An extremely powerful 8271 emulation – ensuring compatibility with almost all software.
- New low profile – small footprint board.
- Fits with all third party ROM boards.
- Option to double the speed of file handling operations – BPUT and BGET.
- Operates in both single and double density modes.
- OSGBPB has been recoded, increasing still further the speed of file handling.

Please note that not all DDFS's are capable of providing either the full 80% storage increase or of allowing a file the full size of the disk – Ours allows both of these!

If you already have a DDFS (any manufacturer), and wish to upgrade to our MkII version, then simply return your existing ROM and DDFS board and we will supply the new DDFS for only **£39.00.**

• SPECIAL PRICE	£44.00
• DDFS Manual	(No VAT) £6.95
• We will exchange your existing DFS Kit for our sophisticated DDFS for only	£30.00

Please note, as the MkII DDFS is a hardware and sofware upgrade, it is not possible for existing Watford DDFS users to simply exchange the ROM for the new version.

3M – Diskettes

3M – SCOTCH Diskettes with Lifetime warranty from Watford Electonics your 3M Appointed Distributor

• *10 x 5.25" S/S D/D 40T (744)*	*£5*
• *10 x 5.25" D/S D/D 40T (745)*	*£5*
• *10 x 5.25" S/S D/D 80 Track (746)*	*£7*
• *10 x 5.25" D/S D/D 80 Track (747)*	*£7*
• *10 x 5.25" 1.6M D/S D/D High Density for IBM XT and AT*	*£9*
• *10 x 3.5" S/S D/D 40/80 Track*	*£7*
• *10 x 3.5" D/S D/D 40/80 Track*	*£7*
• *10 x 3.5" Double Sided High Density*	*£13*

Top Quality 3.5" & 5.25" Diskettes

To complement our range of Quality Discs and Disc Drives. WE are now supplying SPECIAL OFFER packs of 10 Lifetime guaranteed discs. Each disc has a reinforced hub ring. Supplied complete with selfstick labels and a Plastic Library Disc Box.

● *10 x **M3** 3.5" D/S D/D 80 Track*	*£7*
● *10 x **M9** 3.5" D/S High Density*	*£12*
● *10 x **M4** 5.25" S/S D/D 40 Track*	*£5*
● *10 x **M5** 5.25" D/S D/D 40 Track*	*£5*
● *10 x **M7** 5.25" D/S D/D 80 Track*	*£7*
● *10 x **M8** 5.25" D/S H/D Hi-Density*	*£9*
● ***M2** 3" Double Sided*	*£2.50 each*

CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 50234 or 33383

Quality Disc Drives from Watford

All our Disc Drives are Double Sided and will operate in both Single and Double Density modes. All 5.25" Disc Drives are 40/80 track switchable. For ease of use, the switches are front mounted.

Various UK "manufacturers" of disc drives for the BBC Micro (more accurately, "packagers" label other manufacturers drives with their own name). We buy the high quality NEC and Mitsubishi drives in large quantities directly from the manufacturers, package them and sell them at "dealer" prices direct to the public.

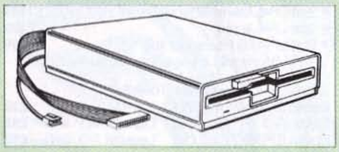
If you look around the popular BBC Micro press, you will find that the prices we quote for the top quality, new slimline disc drives are, virtually without exception, the best around. These prices, coupled with the backup of one of the country's largest distributors of BBC peripherals provides a superb deal.

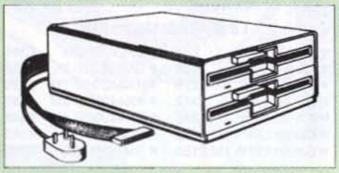
Unless you anticipate using dual drives in a fully expanded BBC system for long periods of time with little ventilation, then we suggest that our range of "CL" disc drives without the PSU (Power Supply Unit) would be quite adequate (extensive tests within our workshops have confirmed this). All drives are supplied complete with a SPECIAL UTILITIES Disc, Cables and Plugs. The Drives with power supply have a mains moulded plug for safety purposes. ***Ideal for Schools & Colleges.***

When using a BBC Micro, most people find themselves short of desk space. The Watford's BBC Micro plinths form an ideal way of recovering some of this precious space. Your BBC Disc Drive and Monitor can all occupy the same vertical footprint and still be comfortably situated. With the Watford Double Plinth, your Disc Drive is mounted vertically at one side, leaving a very valuable area directly in front of you for such useful items as spare discs, pen, paper, reference manuals, etc. Follow the trend with a Watford plinth. (Turn to the 6th page of our advert for the Plinths).

P.S. All our 5.25" Disc Drives with PSU are compatible with the Compact Micro. All you require is our special Compact Disc Drive cables designed by us.

"Test Bureau Approved for Use in Education"





Our Disc Drives conform to BS415

Type	Description	
	Disc Drive without PSU	
• **CLS400S:**	Single, 40/80 track 400K Double sided Drive	£72
• **CLD800S:**	Twin, 40/80 track, 800K Double sided Drives	£142
	Disc Drive with PSU	
• **CS400S:**	Single, 40/80 track, 400K Double sided Drive	£82
• **CD800S:**	Twin, 40/80 track, 800K Double sided Drives	£155

Special Cable to connect both 3.5" and 5.25" Disc Drives simultaneously to the BBC Compact £13

Disc Drive/DDFS Offer

- The popular CLS400S 40/80 track switchable disc drive.
- Watford's popular Mk II DDFS Interface (allows up to 720K storage). Will run both in single & double density modes.
- A comprehensive DFS Operating manual

Bargain at Only **£116** (Offer valid until stocks last)

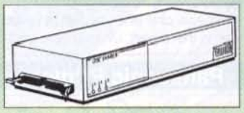
3.5" DISC DRIVE

These top quality 3.5" Double sided, 80 track, are attractively finished in BBC beige. They are supplied complete with all cables and a Utilities Disc.

Type	Description	
	Disc Drive without PSU	
• **CLS35:**	Single Disc Drive, 400K	£62
• **CLD400S:**	Twin Disc Drives, 800K	£109
	Disc Drive with PSU	
• **CS35:**	Single Disc Drive, 400K	£83
• **CD35:**	Twin Disc Drives, 800K	£126

(P.S. CS35 is supplied in a twin case with a blanking plate to enable easy expansion to a dual drive at a later stage)

Disc Drive Sharer

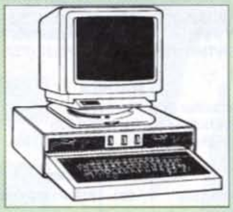


(Ideal for educational establishments)

A low cost alternative to the Econet system. Watford's Intelligent Disc Drive Sharer allows you to connect 3 BBC Micros (model B, B+ and Master series) to a single or double disc drive. Running under any DFS or DDFS, this intelligent unit will automatically queue the computers. Each computer has a status light dedicated to it. If it is green you will get immediate access to the disk, and red means that you are next in line. The unit plugs directly into the disc drive socket on each computer and is powered by the mains. (N.B. Not for use with ADFS.)

Price includes 3 Cables £55

Disc Drives in Monitor Stand



• **CDPM 800S** – Twin 5.25", 800K Double sided 40-80 track switchable disc drives mounted in an attractively finished Beige colour plinth for the BBC B & Master 128K micros. Supplied complete with integral power supply, cables and Utilities disc. The mains switch with neon On/Off light indicator, and the two 40/80 track switches are mounted on the front panel for ease of use.

£165

• **DP35 800** – Same as above except, one disc drive is a 5.25" and the other is 3.5".

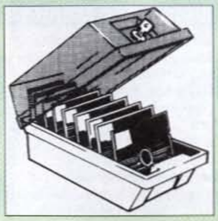
£154

Floppy Head Cleaner Kit

The heads in floppy drives are precision made and very sensitive to dirt. The use of Cleaner Kit is a sensible precaution against losing valuable data. It is recommended to clean the drive head once a week. it is very simple to use. Available in 3.5" & 5.25", please specify.

Price £4

Antistatic Lockable Disc Storage Units



Gives double protection – Strong plastic case that affords real protection to your discs.

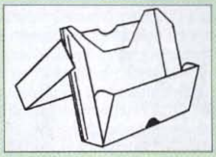
Antistatic helps avoid data corruption whilst in storage. The smoked top locks down.

Dividers and adhesive title strips are supplied for efficient filing of discs.

• **M35** – holds up to 50 5.25" discs	£4.95
• **M85** – holds up to 95 5.25" discs	£6.95
• **M25*** – holds up to 25 3.5" discs	£4.95
• **M50** – holds 50 3.5" discs	£6.50
• **M10** – holds 8 of No. 10 Data Cartridges	£15

* Not lockable

Plastic Library Cases



Holds up to 10 x 3.5" Discs.	£1.50
Holds up to 10 x 5.25" Discs.	£2.00

Dust Covers (For our Disc Drives)

Single CLS (without PSU)	£3.20
Single CS (with PSU)	£3.25
Twin CLD (without PSU)	£3.85
Twin CD (with PSU)	£3.90

Disc Albums

Attractively finished in black leather-look vinyl. Stores up to 20 discs. Each disc can be seen through the clear view pocket.

£4

Special Bulk Offer on Discs

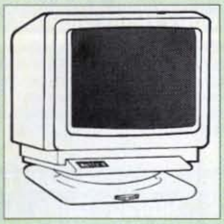
(Supplied packed in Anti-Static Lockable Storage Units)
(Lifetime warranty on Discs)

PRICES SLASHED

BULK PACK DISCS in lots of 100

Type	S/S 40T	D/S 40T	D/S 80T
• Without Sleeves 5.25"	£30	£35	£40
• With Sleeves 5.25"	£33	£38	£43
• 3.5" D/S D/D	£29 for 50		£52 for 100

Continued→ → → → → → → → →



Microvitec Monitors

• **1431** – Standard Resolution Monitor	£169
• **1451** – Medium resolution, suitable for word processing in mode 0	£209
• **Cub3000** Medium Res for A3000	£189
• **1441** – High res, exceeds the capabilities of the BBC Micro	£359
• **2040 CS** 20" Hi Res	£675
• Dust Cover for Microvitecs	£5.50
• **Touchtec 501 Touch Screen**	£239

Now 3 years Parts & Labour warranty on all Microvitec Monitors

Multiscan Colour

• Eizo 9060S	£389	• NEC 5D	£1179
• Eizo 9070S	£579	• Taxan 770LR	£370
• NEC 2A	£245	• Taxan 775	£369
• NEC 3D	£323	• Taxan 795	£405
• NEC 4D	£629	• Taxan 875	£669
• VIDC Enhancer Board			£25

(P.S. Taxan 795 monitor is supplied with a FREE VIDC enhancer board)

NEW

Aries AlphaScan Monitor

Pound for Pound, the AlphaScan VGA Multiscan monitor provides the maximum performance and greatest flexlbility of any 14" colour monitor.

Its multiscan circuitry provides automatic adjustment for frequencies between 30 and 60KHz horizontal, and 50 and 90Hz vertical. Its 0.28mm dot pitch high resolution tube provides super sharp text graphics, while a high speed (70/72Hz) refresh rate provides a flicker-free display easing the eye strain. The Multivideo VIDC Adaptor supplied (free) with the monitor allows high resolution operation in all screen modes.

£325

Philips Monitors

• **BM7502** 12" Hi-res Green Monitor	£67
• **BM7522** 12" Hi-res Amber Monitor	£67
• **CM8833** 14" Med. Res Colour Monitor	£170
• TV Tuner for CM8833 Monitors	£62
Dust Cover for Philips Monitors	£6

FREE Swivel Base with Philips CM8833!

STAR BUY

- **PHILIPS 14"** Medium Res, dark glass, attractively finished Colour Monitor. A push-button switch toggles between Hi-Res monochrome green text mode and full colour display. (Please state the type of Connecting Lead you require).

ONLY £169

Spare Monitor Leads

BNC Lead for Zenith or Philips	£3
Skart Monitor Lead	£5
RGB lead for TAXAN Monitors	£3
Archimedes Colour Monitor Lead	£7.50

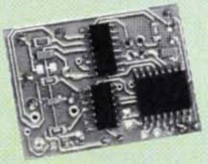
Anti Glare VDU Screen

These extremely effective, easy to install, 12" & 14" VDU screens eliminate harmful glare, improves contrast on colour monitors. Increases productivity in offices. A must for wordprocessor users.

£12

NEW

Watford VIDC Enhancer



This unique VIDC add-on board for the Archimedes, caters for all types of Multiscan and VGA monitor and mode requirements. There are 2 versions to suit all requirements. The multimode software supplied, provides all the new modes for the selected monitor type, including the now standard Computer Concepts modes. With VGA monitor, you are no longer restricted to a few modes. A WIMP application supplied on disc, allows new modes to be designed and existing modes to be modified for particular monitors.

Super VGA VIDC Card: This provides support for both VGA and Multisync monitors. A unique electronic design allows the horizontal and vertical sync to be buffered and have the polarity changed under software control

£45

MultiVideo VIDC Card: As above but for MultiScan monitors only.

£25

FREE On-Site Maintenance

This month we are also offering at no extra cost to all our customers, 12 months, On-Site Maintenance on all Laser Printers, Roland Plotters and of course the full range of Archimedes Micros. Should the machine fail, simply telephone the maintenance engineer, who will call in within 12 working hours.

(Offer applicable only when bought at prices advertised in this advert. UK mainland only).

Panasonic Printers

• **KX-P1081**	£105	• **KX-P1180**	£99
• **KX-P1123**	£144	• **KX-P1624**	£285
• **KX-P1124I**	£194	• **KX-P1654**	£399
• **KX-P1170**	£POA	• **KX-P1695**	£285

Panasonic Accessories

Cut Sheet Feeders

KX-P1592/1595 (P32)	£175	KX-P1540 (P35)	£175
KX-1124 (P36)	£79	KX-P1180 (P37)	£66
KX-P1624/1695 (P38)	£124	KX-P1123 (P37)	£66

Buffers

P12	4K buffer Board for 1081	£55
P42	32K buffer Chip for 1592/1595	£16
P43	32K Buffer Chip for 1540/1124/1180	£16

Serial Interfaces

P17 P1081/1592	£32	**P19** P1124/1180	£49

Citizen Printers

120D Plus	£96	124D Printer	£139
Prodot 9	£196	Prodot 24	£219
Prodot 9X	£245	Swift 24#	£205
Swift 9	£129	Swift 24X	£264
• Prodot Cut Sheet Feeder			£120
• Swift 24 Colour Option			£29
• Swift 24 Ribbons	Black £4		Colour £13

Special Offer this month – A FREE Colour option cartridge with every Swift 24 printer purchased from us.

Star Printers

• **LC10** 9pin 80col. 144/36 CPS	£105
• **LC15** 9pin 136col. 180/45 CPS	£173
• **LC24-10** 24pin 80col. 180/60 CPS	£143
• **LC24-15** 24pin 136col. 200/67 CPS	£288
• ***FR10** 9pin 300/76 CPS 31K 16 fonts	£210
• **FR15** Wide carriage version of above	£260
• ***XB24-10** 24pin 80col. 240/80 CPS	£269
• **XB24-15** 24pin 80col. 240/80 CPS	£345
• **XB-24** Colour Kit	£29
• **LC-200** Colour 9pin 80col. 180/45 CPS	£152
• **LC-24-200** 24pin 80col. 222/67 CPS	£150
• **LC24-200** Colour 24pin 80col. 222/67 CPS	£217

*FREE Colour Ribbon with these printers

Star Accessories

Cut Sheet Feeder

LC10/200/24-10	£65	LC15/LC24-15	£125
XB24-10	£80	XB24-15	£139

Serial Interfaces

SPC-10	LC10; LC10-II; LC10-Col; LC15; LC24-10; LC24-15; LC-200; LC24-200	£49
8K Ser	LC-200; LC24-200; FR10; FR15; XB24-10; XB24-15	£64

Paper Roll Holders

LC-200; LC24-200; LC24-200 colour	£29

Buffers

32K Ram Card for LC/XB24-10; 15; LC200	£55

Ribbons

LC10; LC10-II; LC15	Black **£4;**	Colour **£6**
LC-200; LC24-200	Black **£5;**	Colour **£12**
XB24-10; XB24-15	Black **£5;**	Colour **£12**

Laser Printers

• Canon LBP-4	4ppm	£580
• Canon LBP-8 IIIR	8ppm	£1499
• Canon LBP-8 IIIT	8ppm	£1365
• Epson EPL7100	6ppm	£619
• HP Laserjet III	8ppm	£999
• HP Laserjet IIID	8ppm	£1569
• HP Laserjet IIIP	4ppm	£629
• HP Laserjet IIIsi	16ppm	£2475
• Panasonic KX-P4420	8ppm*	£599
• Panasonic KX-P4450i*	11ppm*	£1015
• Panasonic KX-4455 Postscript	11ppm*	£1469
• Qume Crystal Print Publisher 2		£1555
• Star LP-8 II	8ppm	£929
• Star LP-8 Star(post)script		£1129
• Star LP-4 4ppm		£689
• Star LP-4PS Postscript 4ppm		£799

* Now with 2 years On-site warranty

Laser Toners

Canon 2 & 4	£54	KX-P4420/50	£22
Epson GQ	£18	Laserjet III/P & III/P	£55
Epson EPL7100	£95	Laserjet II/D, III/D	£70
Star LP-8	£69	Qume Crystal	£56

Laser RAM Upgrades

• IIP & III 1MB	£74	• EPL7000 2M	£365
• IIP & III 2MB	£109	• GQ5000 512K	£95
• II & IID 1MB	£76	• KX4420/50 1M	£115
• II & IID 2MB	£112	• KX4420/50 2M	£159
• II & IID 4MB	£299	• KX4420/50 4M	£349
• Canon LBP4 1M	£175	• Star LP8 1M	£143
• Canon LBP8 2M	£150	• Star LP8 2M	£285

Laser Drum & Developer

• Epson Drum	GQ5000	£93	EPL7100	£129
• Panasonic 4420 Drum		£60	Developer	£59
• Panasonic 4450 Drum		£93	Developer	£80
• Qume Drum		£76	Developer	£56

Jetpage Postscript Cartridge

• HP IIP/III	£255	IID & IIID	£265

NEW – HP Laserjet

Various Font Cartridges	£45
Superset Font	£195

Integrex Colour Jet

• Colour Jet 132 Printer	£499
• Paper Roll	£6.50
• BBC Screen Dump Software	£10
• Colour Cartridge	£19.50
• Black Cartridge	£11.25
• 100 A4 OHP transparencies	£55
• 8K Serial Interface Optional	£123

Hewlett-Packard Printers

• # Desk Jet 500	£285	• Paintjet XL	£999
• Desk Writer (Mac)	£480	• Quiet Jet Plus	£350
• Desk Jet Cartridge	£15	• HP Think Jet	£232
• Paint Jet Colour	£569	• Rugged Writer	£825

Now 3 years extended Parts & Labour warranty

- Paintjet Cartridges Black **£19;** Colour **£25**
- Desk Jet 500 256K RAM cartridge **£129**
- HP Epson FX Emulation Cartridge for Desk Jet **£59**

HP Apple Talk Interfaces for

- Scan Jet **£299** • Paint Jet **£POA**
- Desk Jet Unlimited (Book No VAT) **£19.75**

Canon Bubblejet Printers

	Printer	CSF	D'ble Bin	Ink Cart
BJ10E	£178	£43		£18
BJ300	£320	£88	£65	£12
BJ330	£374	£110	£79	£12

- Spare Battery pack for BJ10E **£33**

NEC Pinwriter Printers

• P20	£175	• P70	£446
• P30	£237	• P90	£635
• P60	£345		

Epson Printers

DFX5000	£1059	LQ860 Colour	£459
DFX8000	£1985	LQ1050+	£459
EX1000 Colour	£428	LQ1060 Colour	£609
FX850	£272	LQ2550+	£685
FX1050	£346	LX400	£105
FX1060	£595	LX850	£146
LQ400	£156	SQ850	£425
LQ550	£204	SQ2550	£628
LQ850+	£377		

Cut Sheet Feeders for

LX400/800/850/LQ400/500/550	£69
EX800/FX800/850/LQ800/850	£130
FX/LQ 1000/1050/SQ850	£159
LQ 2550 **£390** SQ2550	£390

Tractor Feed for

LQ800 **£44;** LQ850/FX850 **£69;** LQ1050/FX1050 **£85;** LQ2500 **£90;** LQ2550 **£90.**

Accessories

- EX800/1000 Colour Option **£45**
- EX800/1000 Colour Ribbon **£14**
- LQ2500 Colour Option **£65**
- Multifont Card for LQ550/850/1050 **£95**

Epson Printer Interfaces

All these interfaces fit inside the printer

RS232	£32	RS232 + 2K Buffer	£52
IEEE 488	£95	RS232 + 8K Buffer	£75

Printer Leads

BBC Centronics 4' long	£5
BBC Centronics 6' extra long	£7
Compact's Special Centronics Lead	£7
Nimbus Centronics Lead	£6
IBM/Archimedes Parallel Lead 6'	£4
IBM/Archimedes Parallel Lead 5 metres	£10
IBM/Archimedes Parallel Lead 10 metres	£15
Double Ended 36 way Centronics Lead 4'	£7
Double Ended 36 way Centronics Lead 6'	£9
MSX Centronics Parallel Lead 4'	£12
RS232 Leads (Various)	P.O.A.
IBM Keyboard extension lead coiled	£5

Concept Keyboards

Standard A3 Keyboard with BBC Software	£143
Standard A4 Keyboard with BBC Software	£117
Archi A3 Keyboard	£144
Archi A4 Keyboard	£118

CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 50234 or 33383

Plotters

• HP7440	£415	• HP7475	£599

Roland Plotters

• DXY1100	£499	• DXY1200	£629
• DXY1300	£830	• DXY2500	£2375
• DPX3500	£3289	• Sketchmate	£315

- Roland plotter Pens, Fibre tip **£7.50**

Listing Paper (Perforated)

• 1,000 Sheets 9.5" x 11" Fanfold Paper	£7
• 2,000 Sheets 9.5" x 11" Fanfold Paper	£11
• 1,000 Sheets 9.5" x 11" NCR 2 Part Fanfold	£21
• 1,000 Sheets 15" x 11" Fanfold Paper	£9
• 2,000 Sheets 15" x 11" Fanfold Paper	£16
• 1,000 Sheets true A4 Fanfold Paper 70gms	£11
• 2,000 Sheets true A4 Fanfold Paper 70gms	£21
• Teleprinter Roll (Econo paper)	£4

(All our Fanfold paper is Micro perforated leaving a smooth clean edge when the tractor feed strips are detached).

Carriage 1K Sheets £2.50, 2K Sheets £3.00

Printer Labels

(On continuous fanfold backing sheet)

1,000 90 x 36mm (Single Row)	£6.00
1,000 90 x 36mm (Twin Row)	£6.25
1,000 90 x 49mm (Twin Row)	£7.50
1,000 102 x 36mm (Twin Row)	£6.75

Printer Ribbons & Various Dust Covers

Type	Ribbons	Dust Covers
Brother HR15/20	£6.00	–
BBC Micro	–	£3.50
BBC Master	–	£4.00
Archimedes Micro pair	–	£9.00
Citizen 120D	£2.75	£4.50
DMP2000	£2.75	£4.75
DMP4000	£3.75	£4.85
EX800/1000	£3.50	£5.00
RX/FX80/85/800/MX80	£2.95	–
FX/MX/RX100/1000	£3.95	–
Kaga/Taxan KP810/815	£3.25	£5.00
LQ400/500/550/800/850	£3.25	£6.00
LQ1050/LQ2500	£4.00	–
LX80/86/800/850	£2.75	£4.50
LX400	£3.50	£5.00
M1009/GLP	£2.95	£3.75
NEC P2200	£4.50	£5.00
Panasonic KX1080/81	£3.25	£4.75
Panasonic KX-P1124	£7.50	£5.00
SQ2500	£8.00	£5.50
Star LC10/NL10	£2.75	£5.00
Star LC24-10	£2.95	£6.00
Olivetti Ink Jet Cartridges (set of 4)	£6	

Our attractive Dust Covers are manufactured from translucent PCV. The seams are stitched and edges are taped to prevent splitting due to continuous use.

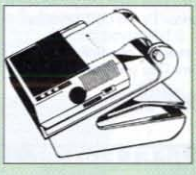
Original Panasonic Ribbons

Guaranteed to last 3 million characters

P110 for KX-P1081, 1592 & 1595	£6		
P115 for KX-P1180	£7	**P145** for KX-P1124	£7
P140 for KX-P1540	£8	**P155** for KX-P1624	£8

Colour Ribbons for KX-P1081, 1592 & 1595
Brown, Blue or Red **£9 each**

Professional Printer Stand



The professional printer stand takes hardly more space than your printer. Due to the positioning of the paper feed and re-fold compartments ie. one above the other, the desk space required for your printer functions is effectively halved. Its ergonomic design ensures smooth paper flow and automatic refolding.

80 Column version £24 (carr. £3)
132 Column version £29(carr. £4)

Universal Printer Sharers/Changer

Connect up to 5 Micros to 1 printer or 5 Printers to 1 Micro with our combined, Sharer/Changer. These Units are made to a very high standard. For extreme reliability, they all have Printed Circuit Boards mounted inside the case, (not a Spaghetti Junction of wires).

(Ideal for School environments)

Connects	Serial	Centronics
2 to 1	£16	£17
3 to 1	£22	£24
5 to 1	£32	£36

(Cables extra at £6 each. Please specify type required when ordering)

2 Way Compact Printer Switch

A handy 2 way printer switch. Enables one micro to be connected to 2 printers or vice versa.

Centronics **£18;** Serial **£17**
(Cables extra at £6 each)

Auto Printer Sharer Switch

Connects	Serial	Centronics
2 to 1	£40	£45
4 to 1	£62	£59
8 to 1	–	£89

256k Multi Spooler

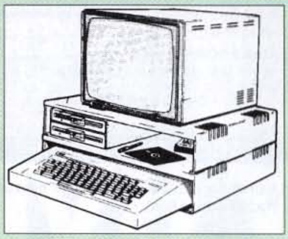
These Auto Centronics Printer Sharers have built-in 256K of Printer Buffers. They can be used as Auto Sharers, Printer Buffers or both.

• 2 In/2 out	£135	• 4 In/2 out	£169
• 8 In/1 out	£199		

Compact Converter Units

Serial to Parallel	£36	Parallel to Serial	£37

Plinths for the BBC B & Master 128K Micros

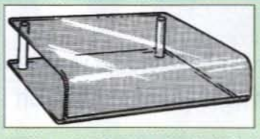


Protect your computer from the heat of your VDU. Our micro plinths have slots for maximum ventilation. The single plinth is suitable for a BBC and VDU, whilst the double height version provides enough room for our stacked disc drive and other peripherals like, Eprom programmer, music unit or simply discs & stationery. The computer slides neatly in the lower section allowing easy access to remove the lid. Colour: Matching BBC Beige.

Single BBC Plinth	420 x 310 x 105mm **£13**
Double BBC Plinth	420 x 310 x 210mm **£24**
Single Master Plinth	490 x 310 x 105mm **£14**
Double Master Plinth	490 x 310 x 210mm **£26**

(Carr. Single plinth £2; double plinth £3)

Perspex Printer Stand



Give your Computer System a touch of Class with our elegant, smoke finished Perspex Printer stand.

80 Column version	**£16** (carr £3)
136 Column version	**£20** (carr £4)

Continued→ → → → → → → → →

QUEST MOUSE Mk III

• Quest Mouse III & Quest Paint	£59
• Quest Mouse III, Quest Paint, AMX Stop Press & Pagefont	£89
• Quest Mouse III only	£30
• Quest Paint Software only	£34
• Quest Font Disc (22 Text Fonts)	£15
• Quest Mouse Mat (Red or Blue or Green please specify)	£3
• Quest Colour Dump Disc – This new software allows you to print direct from Quest Paint to your Integrex Colour Printer	£18

(P.S. Quest Paint is not compatible with BBC Compact)

Quest Paint is the winner of the BBC Acorn User 1990 Award for the Best Art/Graphics software

ConQuest

Quest combined with ConQuest and Acornsoft GXR ROM make up THE MOST POWERFUL drawing packages available for the BBC range. Quest Paint is able to take advantage of almost any additions to your machine, such as Shadow or Sideways RAM. ConQuest takes this principal even further, by utilising the otherwise normally incompatible Sideways RAM facility by holding pictures in them.

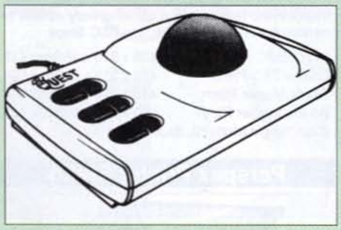
ConQuest ROM Package £30
(Price includes software in ROM and a comprehensive Manual).
(Not Compatible with BBC Compact)

ARCHI Mk II MOUSE

An extremely reliable replacement mouse for Archimedes Micro £32

Quest – Tracer ball

An attractively finished, extremely reliable, mouse replacement, input device. Requires very little desk space. Connects directly to your BBC B, BBC Master or Archimedes Micro.



QT-10 BBC/Master Version	**£27**
QT-20 Archimedes Version	**£30**

RB2 Marconi TRACKER BALL

RB2 (AMX/Quest compatible)	£45
RB2 including Quest Paint	£75
RB2-A for Archimedes	£46

THE NEW Mk III AMX MOUSE

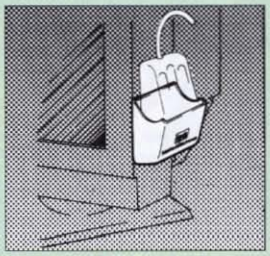
Inc. Super Art package

ONLY: £59 (carr £3)

(Please specify for BBC, Master or Compact)

MOUSE MAT	£3
AMX MOUSE ONLY	£29
AMX SUPERART Package	£34
AMX STOP PRESS – A Desktop publishing software. Works with Keyboard, Joystick or a mouse	£32
PAGE-FONTS – Over 20 Fonts for use with AMX Pagemaker	£13
AMX DESIGN (ROM)	£55
AMX XAM Educational	£15
AMX EXTRA EXTRA	£16
AMX MAX A gem of desktop (ROM)	£20

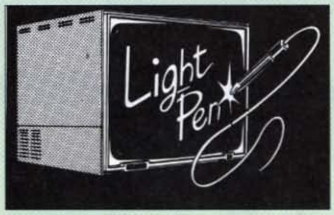
WE Mouse House



Treat your mouse to a cosy Mouse House. This handy little gadget solves the problem of where to store your mouse when it is having a rest. Made of sturdy plastic, the WE Mouse House attaches to the side of your computer, monitor, disc drive or desk.

It protects it from damage when not in use, yet within easy reach when you need it again. At £4 it does not cost a rodent's ransom.

Price £4



Our Mark II Light Pen is the very latest in light pen technology. It is totally insensitive to local lighting conditions and works with many different monitors. The pen only responds to the High Frequency light produced by your monitor/TV. An LED indicates when valid video data is being produced. A conveniently located switch is also fitted. (Price includes FREE software Disc and Operating Manual)

Only £21

FLEET STREET EDITOR

Software pack for BBC Micro	£33
Software pack for the Master	£39
Admin Xtra Disc Utility	£13
Fonts N Graphics Disc Utility	£13

BEEB VIDEO DIGITISER

"Test Bureau Approved for Use in Education"

Using any source of composite video (colour or monochrome) and the Watford Beeb Video Digitiser, you can convert an image from your camera into a graphics screen on the BBC Micro. This uses the full graphics capacity of the BBC micro in modes 0, 1 or 2. The video source may be a camera, video recorder or television, and is connected via the video output socket. The software supplied includes a sophisticated, fast screen dump routine.

Images produced can be compressed, stored to disc, printed on an Epson compatible printer, directly used to generate graphics, analysed for scientific and educational use or converted to other formats e.g. Slow Scan TV or receiving a picture from a remote camera using a modem. The output from the digitiser exactly matches the graphics capability in each mode, with up to 8 levels of grey in mode 2. The unit connects into the User Port and automatically scans a complete picture in 1.6 seconds.

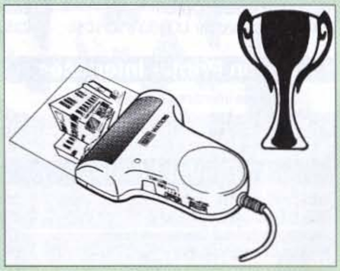
£109 (Carr. £5)

(BBC B+ and Master compatible, except Master with Econet)

(Price includes) Digitiser Unit, Software in ROM & a Comprehensive Manual)

The Beeb HandScan

Hand-held Scanner for the BBC Micro



Watford Electronics are pleased to announce the launch of the first hand held scanner for the BBC Micro. HandScan is a compact unit which will allow photographs, diagrams, or any other documents to be digitised quickly and easily, to then be used in a desk top publishing package, art program, or even in your own Basic programs! These useful devices have been available for faster and more expensive micros for some time, but only now is Watford Electronics able to offer the BBC Micro computer.

The HandScan plugs directly into the 1MHz bus on the BBC while a comprehensive set of utilities provided by the sophisticated ROM firmware. The scanner has a resolution of either 100 DPI or 200 DPI when accuracy is essential. Pictures as wide as 4" may be scanned in mode 0 and various types of dithering may be selected to simulate the grey levels of a scanned picture.

All necessary software has been included in the firmware to allow the scanner to read images directly into our Wapping Editor with little more than the click of the mouse. The digitised picture may then be incorporated into your magazine, newsletter, report or any other document.

Beeb HandScan & Firmware £135

WAPPING EDITOR
"MIGHTIER THAN THE QUILL"

Winner of the BBC Acorn User 1990 Award for the Best DTP/Word Processor

The Wapping Editor

The Wapping Editor from Watford Electronics represents a breakthrough in Desktop Publishing for the Beeb. The package includes a 64K ROM containing ALL the software needed to get into print fast; a very sophisticated graphics module, professional quality typesetting software, a word processor, a comprehensive font editor for designing your own typefaces, and a variety of printer dumps. This mouse-driven system is designed for the BBC B, the B+ and Master computers and will take full advantage of any Sideways and Shadow RAM that may be fitted. It will run under DFS, ADFS and Network filing systems and requires as a minimum just a single 40 track drive.

Included with the system is a utility disc containing several high quality fonts, various utilities and a ROM image of a Support ROM. A comprehensive 100 page manual completes the package. The Support ROM contains routines to allow an area to be rotated to any angle or distorted to any four-sided shape. Also included are facilities to draw ellipses at any angle and sectors, segments and arcs (in Master or BBC B with Acorn GXR). Another of the features of the Support ROM is a 'Turbo DFS' which gives DFS access times comparable with those of ADFS.

Page Layout Section

The Wapping Editor may be used to create pages of any size from an A6 to a full A3 page. If none of the eight default page types suit your purpose, the stand-alone page creation program may be used to create pages to your own requirements. By using proportionally spaced fonts and genuine microspacing it is possible to print over 150 characters across an A4 page. A unique feature of the Wapping Editor is the 'A5 x 2' page size allowing two A5 pages to be printed side by side onto a single A4 sheet.

The graphics module incorporates the facilities like: pencil, brush, airbrush, polygon, circle, eclipse, fill, cut & paste, etc.

Text may be typeset, either justified or unjustified, in any font anywhere on the page. Simply select which font and text document you wish to use, and pull out a rectangle on the page where you want the text to be – it's as simple as that! Multiple columns may be printed just as easily and a special 'expand' feature may be used to expand the microspacing so that the document exactly fits the space defined.

Word-Processor

The integral word processor is the ideal tool for producing your text documents, although text can of course be read in from any of the other popular word processors such as View, Wordwise etc.

The Font Editor

The font editor module will allow you to design your own typefaces or to modify the ones provided on the utility disc. This sophisticated editor has numerous functions designed to take the tedium and frustration out of producing good looking, well balanced fonts. Each character may be individually proportionally spaced and characters of any size up to 16 x 16 pixels may be defined.

Pictures may also be 'grabbed' from a video source by using the Watford BEEB Video Digitiser.

Wapping Editor Software Pack	**£59**
Wapping Editor plus Mouse	**£79**

(Wapping Editor only works with Master Compact if a Mertec Expansion box is fitted)

NEW

At the request of many of our customers we are now able to offer training in the use of Wapping Editor DTP package. For further information please telephone 0923 37774 and ask for Tim or Shiraz

Wapping Art Disc

Over 250K of clip art to cut and paste into your Wapping Editor pages. Pictures include maps, transport, people, media, sport, games etc. Two 'ratio' screens for use with hi-res and rotated A5 pages to ensure images are not distorted when printed out.

Music writing symbols in the form of pattern and brush for quick production of manuscripts are included together with staves.

There are two prepared hi-res pages layed out for printing labels, both single and double width. Ready made label designs are included but these can be easily replaced with your own designs.

A Mode 0 screen dump routine is also included. To pack such a large amount of data onto the discs the screens have been compressed and routines to compress and expand Mode 0 screens are included on both discs. Using the packing routine you can archive large numbers of screens onto a single disc.

£15

Wapping Font Disc 1

Sixteen additional fonts, including smaller version of Oberon and Daisy and two new sizes of the standard font for the Wapping editor.
Also included are three Mode 0 screens containing giant 'headline' fonts to cut and paste to create extra smooth headlines.
Supplied complete with instructions. **£12**

Wapping Font Disc 2

This new addition to our Wapping range of DTP software provides you with additional 23 fonts for the Wapping Editor DTP pack. (80 track discs only). **£13**

Laser Direct

By using the power of the Archimedes RISC processor, it offers the best of both worlds – print speed up to 5 times faster than typical Laserjet compatibles – uses outline fonts so that any font can be scaled to any size – works with all programs that use RISC OS printer drivers. Ideal for use with Genesis, !Draw, Acorn DTP, Impression, etc. Includes 50 sheet paper tray and a single sheet/envelope tray. Requires one expansion slot and at least a 2Mbyte Archimedes. A very compact printer, a very low initial cost and very low running costs.

Special Price: £825

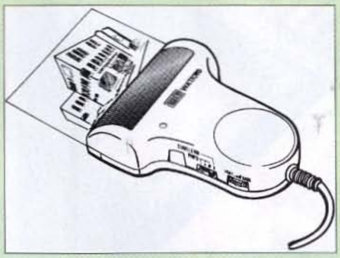
• Special High Res Laser Direct Card 600 DPI for Canon LPB4 Laser Printer	**£325**
• LPB8 Printer plus High Res Card	**£999**

(For demonstration, call in at our retail shop)

CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 50234 or 33383

All prices are exclusive of VAT

Archi Mk II Hand Scanner



Watford Electronics is now able to offer a complete hand held scanning package, possibly the most essential addition to any desk top publishing system, for only £149. The package includes the most comprehensive utility software available for the Archimedes, a high quality hand held scanner, and all necessary documentation to get you going straight away.

SCANNER

The scanner is capable of scanning up to an amazing 400 dots per inch (DPI)! The scanning area is 4" wide, and the height is only limited by the maximum amount of memory available. The dot resolution may be switched to 100, 200, 300 or the maximum 400 dpi. One of four operating modes may be selected offering either pure monochrome scanning, or one of three grey level modes. The grey level modes use different size dither patterns to represent up to 16 shades of grey. There is also a dial to allow the "brightness" to be adjusted over a wide range, in order to optimise the quality for any specific image. The scanner interface is a standard, single width, expansion card (podule) which plugs into the Archimedes' backplane. The socket on the rear panel connects the scanner by 1.8 metres of cable.

SCANNER SOFTWARE

Full use is made of the windowing and the multi-tasking facilities of RiscOS. The software is supplied in a 64Kbyte ROM located on the interface board. The scanner appears as a small icon on the desktop icon bar, and the software is retrieved from the ROM simply by clicking on that icon. As you scan a page, the image appears in the scanning window on the screen, scrolling up in real time. The other facilities included in the software are.

Cropping and scaling to any size including stretching and squashing in X and Y direction separately.

Colour tinting.
X and Y flip.

Edge detection which turns solid objects into outlines.

Selective directional copying which allows features (i.e. lines or text) to be made thicker or thinner.

Scanned images may be saved as sprite files or transferred directly into other RiscOS applications (DTP, Draw, Paint) simply by dragging the sprite file into the application's window. Sprites may also be generated using anti-aliasing. This greatly improves picture quality and is particularly effective when scanning material with a range of grey tones, such as photographs. Images can be printed on any printer that is supported by a RiscOS printer driver, with optional settings for portrait or landscape modes, image scale and positioning. Images are printed using the full resolution of the printer and are not limited to the screen resolution.

On-screen help is provided via the RiscOS interactive help facility. Calls are also provided in the ROM for users wishing to write their own software, incorporating the use of the scanner.

AHS-4 Archi 300/400 Version	**£149**
AHS-3 Archi A3000 Version	**£175**

Continued→ → → → → → → → →

Sideways ROM ZIF Socket System

Allows you to change your ROMs quickly and efficiently, without opening the lid. The ZERO INSERTION FORCE (ZIF) socket is located into the ROM Cartridge's position.

- Very simple to install. NO SOLDERING required. The ZIF (Zero Insertion Force) eliminates the possibility of damage to your ROM pins when inserting & extracting.
- The low profile of the socket allows unrestricted access to the Keyboard.
- All data and address lines are correctly terminated to ensure correct operation of suitable ROMs with the BBC micro. We also supply a purpose designed see-through storage container with anti-static lining, allowing you to store up to 12 ROMs, protecting them from mechanical and static damage.
- This versatile hardware solves the problem of running out of socket space. Simply lift the ROM from the ZIF & insert a different one (No pulling or pushing of Cartridges. It is a must for professionals and Hobbyists alike.)
- BBC, B and B+ compatible.

ONLY **£18** (carr £3)

BBC B Low Profile Cartridge System

Complete System consists of: Low profile ROM Cartridge, Socket housing, Cable assembly, 5 labels and a library storage rack for the BBC B.

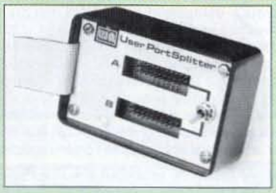
• Complete System	**£11**
• Spare Cartridges	**£2.75**
• Spare Rack	**£1.65**

ROM Cartridges for the BBC Master

Will accept the new larger Piggy Back ROMs like: Interword, Interbase, Quest, Conquest, etc

Twin **£9;** Quad **£14**

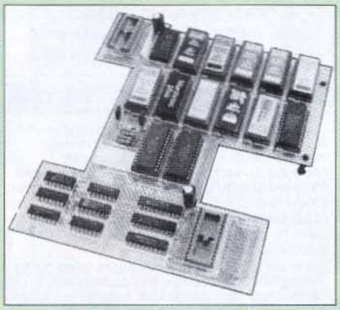
User Port Splitter Unit



Gone are the days when you had to plug and unplug devices from the User Port. This extremely useful little device allows two units to be connected to the User Port simultaneously, and select between them simply by toggling a switch. This device is particularly useful for those people using Quest Mouse and the Watford Video Digitiser or any similar combination

Excellent Value at **£22** (carr £2)

Solderless Sideways ROM Socket Board



The key features of this new, no fuss, easy to install quality product from BBC leaders Watford Electronics are as follows:

- Increase your BBCs capacity for ROMs from 4 to 16.
- **No soldering required.**
- Very low power consumption.
- Minimal space required.
- Compatible with Torch, DDFS, RAM Card, 2nd Processor, etc.
- Socket 14 takes two 6264 RAM chips.
- Read protect to make RAM "Vanish") allows recovery from ROM crashes.
- Battery backup option for RAM chips.
- Supplied ready to fit with comprehensive instructions.

Price: Only £35

Battery Backup fitted **£39**

Battery Backup only **£3**

16K Sideways RAM **£8.50**

(carriage £3)

- Sideways RAM Utilities Disc for Solderless ROM Board. Includes the options to load and save ROM Images and the facility to use Sideways RAM as Printer Buffer.

Only: £8

NEW

Commander Joystick

Watford Electronics' new Commander Joystick for the BBC B and Master 128K has a unique dual mode of operation giving selective free floating or self centring fully variable control in both X and Y axis directions. Commander is particularly good for flight simulation and drawing programs.

Features:

- Direct connection to BBC Analogue input port – no interface needed.
- Fully compatible with all BBC Joystick controlled games programmes.
- Switchable springs allow selection of floating or centring operation.
- Trim adjusters for both X and Y axes for fine centre adjustment.
- Convenient stick mounted fire button with additional base buttons.

Launch Price: £15

ARIES CORNER

B-32 Shadow RAM Card

Like the BBC B+, the B32 provides 20k of shadow screen RAM and 12k of sideways RAM. Unlike the B+, the B32 has simple software commands which allow the user to reconfigure the RAM as 16k of shadow RAM and 16k of sideways RAM, or all 32k as sideways RAM.

With the B32, the programmer gets up to 28k of RAM available for Basic, Logo, Cobal, Forth, Lisp and BCPL programs in any screen mode. The business user gets extra memory for View, ViewSheet, Wordwise Plus, Interword and many other applications. For advanced applications, the scientific user gets access to a massive 47k of data storage using the Acorn approved ★FX call.

Sideways RAM enables you to load sideways ROM images from disc, allowing you to have a large library of sideways ROMs (subject to the copyright holder's permission) stored on disc. The B32's sideways RAM can also be used to extend any operating system buffer (such as the printer buffer) or to load tape programs into a disc system.

The B32 simply plugs into the 6502 processor socket on you BBC micro – no flying leads to connect and no soldering. Provision of the onboard ROM socket means that the Aries-B32 control ROM does not use up one of your existing ROM sockets.

- Recommended by Computer Concepts for use with their Inter series of ROMs.

Price: **£59** (carr. £3)

Aries B-12 Sideways ROM Board

The B-12 provides a total of twelve sideways ROM sockets (the four in the original machine are replaced by the twelve on the board), all fully accessible by the MOS sideways ROM system. In addition, there are two sockets for sideways RAM, giving up to 16k of RAM using 6264 static RAM chips.

If you do not have a B32 or B20, a small adaptor module (the Aries-B12C) is available at a nominal cost

Price:	Aries B-12	**£36**
	Aries B-12C	**£5**

Aries B-488 IEEE-488 Interface Unit

The Aries-B488 is an interface unit to enable the BBC micro to control and monitor IEEE-488 bus systems. The IEEE-488 bus (also known as the 'GPIB or 'HP IB') is the standard method of interconnecting programmable laboratory instruments and control equipment. Using the B488, up to 15 devices may be connected in a single high-speed data network.

£238 (Carr £3)

Voltmace Joysticks

Delta 3B Single Joystick	**£10**
Delta 3B Twin Joysticks	**£15**
Delta 3C Joystick for Compact	**£10**
Delta 14B Single Joystick	**£11**
Delta 14B/1 Adaptor Module	**£12**
Transfer Software Disc-Tape	**£7**
Delta-Cat A mouse eliminator Joystick for the Archimedes	**£24**

Delta Base B

Analogue aircraft style yoke Joystick to run in the analogue port of the BBC B & Master 128	**£25**

ROM/RAM Card

Watford Electronics announced the first ever commercial ROM board for the BBC micro, the Watford Electronics 13 ROM Socket Board 7 years ago. Following the success of this board, we have designed what probably represents the ultimate in expansion boards, the new Watford Electronics ROM/RAM board. This highly versatile and sophisticated board represents the latest in "2nd generation" sideways ROM technology for the BBC micro, designed to satisfy the serious BBC user.

- NO SOLDERING required to fit the board.
- NO User Port corruption (avoids problems with the mouse, modems, Eprom Programmers, etc.)
- Fully buffered for peace of mind.
- Compatible with BBC micros (not BBC+ or Master).
- Total number of ROMs increased from 4 to 8.
- Up to 8 banks of sideways RAM (dynamic).
- Option for 16k of battery backed CMOS RAM (CMOS RAM needs one ROM socket).
- Software Write protect for ALL RAM.
- Read protect for CMOS RAM (ALLEVIATES crashes during ROM development).
- Separate RAM write register (&FF30 to &FF3F).
- Automatic write to currently selected RAM socket for convenience.
- FREE utilities disc packed with software.
- Compatible with our DDFS board, 32k RAM Card, Delta Card, sideways ZIF, etc.
- Large printer buffer.
- UNIQUE fully implemented RAM FILING SYSTEM (similar to the popular Watford DFS).
- ROM to RAM load and save facilities.

The SFS (Silicon Filing System) can utilise up to the full 128k of RAM (with the SFS in any paged RAM) as a SILICON DISC. This behaves as a disc drive, with all the normal Watford DFS features (including OSWORD &7F for ROMSPELL, etc.) to provide an environment that looks like a disc but loads and saves MUCH faster.

The ROM-RAM Board plugs into the 6502 CPU socket. This leaves free all the existing ROM sockets, which can still be used normally.

Any ROM that can be plugged into the BBC micro's own ROM sockets may be used in the ROM-RAM Board.

The ROM-RAM Board is supplied with all ordered options fitted as standard. Upgrade kits (with full instructions) are available for all of the options, for later.

PRICES:

- ROM/RAM card with 32k dynamic RAM **£45**
- ROM/RAM card with 64k dynamic RAM **£59**
- ROM/RAM card with a massive 128k dynamic RAM **£99**

(carriage on ROM-RAM Card £3)

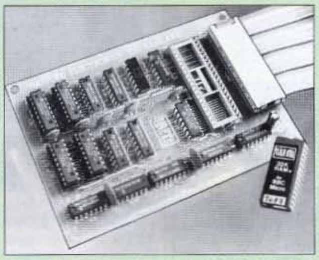
OPTIONAL EXTRAS:

16k plug-in Static RAM kit	£9
16k Dynamic RAM for Upgrade	£13
Battery backup	£3
Read and Write protect switches	£2 each
Complete ROM-RAM board All options installed	£115

P.S.

IS your existing ROM Board overflowing with ROMs? Do you need more Sideways RAM? Is your Board unreliable? Then upgrade to Watford, ROM/RAM Board and pay £5 less.

32K Shadow RAM/Printer Buffer Card Expansion Board



A MUST FOR WORD PROCESSING

Don't throw away your BBC B for a BBC B Plus or BBC Master. Just plug the ribbon cable into the 6502 processor socket, and fit the compact board inside the computer. Immediately you will gain not 16k or even 20k, but a massive 32k of extra RAM!!!

- IMPROVE your WORD PROCESSING system, whether disc or cassette based. Don't wait for a slow printer – type in text while printing. TWO JOBS DONE SIMULTANEOUSLY and £100+ saved on a printer buffer.

- "VIEW" Wordprocessor users can now type in letters in 80 columns and have up to 28,000 bytes free – 5 times as much as normal.

- In WORDWISE (or WORDWISE-PLUS), preview in 80 columns with the full 24k of text in memory. This product is recommended as an ideal complement by Computer Concepts.

- Combine GOOD GRAPHICS and LONG PROGRAMS. Use the top 20k of the expansion RAM as the screen display memory, leaving all the standard BBC RAM free for programs. Benefit from MODE 0/1/2 graphics and 28k of program space.

- Use the FULL 32k or the bottom 12k of the expansion RAM as a PRINTER buffer for PARALLEL or SERIAL printers, sound channels, RS432 etc. Print large text files while running long graphics programs, and have all your buffer options available as well (*FX15,21,138, 145,ADVAL etc). Please note only a 12k printer buffer can be used with Wordwise or Wordwise-Plus, due to the way they are written.

- Unique facility to turn ROMs off and on again. Unlike all other ROM managers, this feature does not use 'unofficial' memory. Two bytes of normally user-inaccessible memory on the RAM card are used to ensure ROMs are disabled WHERE OTHER ROMS FAIL.

Only £54 (carr £3)

(Price includes a comprehensive manual and the ROM)

BBC SOFTWARE'S Popular Educational Software

Maths with a Story 1 (Disc). 4 primary level maths programs	£20.00
Maths with a Story 2 (Disc). 4 further maths programs.	£20.00
Picture Craft (Disc) 6-14 age group. Pack consists of flexible geometrical design & colouring programs.	£17.00
ECOLOGY O-Level program.	£20.00
POLYMERS O-Level program.	£20.00
Classification & Periodic Table O-Level. The suite is supplied with its own database of chemical elements which can be classified according to your own rule.	£20.00
ADVANCED TELETEXT SYSTEM	£8.65
PERIOD TABLE SOFTWARE	£20.00
Computers at Work – Primary	£17.35
Introducing Geography 11-17 years	£17.50
Electric Fields 6-14 years	£11.25
Espana Viva – 3 Discs	£19.95
WHITE KNIGHT Chess game	£16.00
A Vous La France	£29.00

More Educational Software

FUN SCHOOL 2 – Red: Under 6 yrs – 8 programs on Discs, Shape Snap, Find the Mole, Teddy Count, Write a Letter, Colour Train, Pick a Letter, Spell a Word & Teddy Bears Picnic.	£12.00
FUN SCHOOL 2 – Green: 6-8 yrs – Eight programs on Disc, Number Train, Shopping, Maths Maze, Treasure Hunt, Bounce, Packing Caterpillar, 3 Number jump	£12.25
FUN SCHOOL 2 – Blue: Over 8 yrs – Eight programs on Disc, Build a Bridge, Passage of Guardians, Unicorn, Logic Doors, Souvenirs, Code Boxes, Mystery Machine & Escape.	£12.50
FUN SCHOOL 3 – Red	£19.95
FUN SCHOOL 3 – Green	£19.95
FUN SCHOOL 3 – Blue	£19.95
Six French Games – Aimed at pupils in their first year of French, but also useful as revision for more advanced students 11 years+	£26
More French Games – Another 6 games 12 years+	£26
Au Restaurant and Accident de Route 12 years+	£26
Boulogne and Oh-Les – 2 programs for beginners	£26
Letters to French Penpals – 11 years+	£26
French Programs with Henri Beret – The programs in this series present vocabulary, grammar and role-play phrases in the form of animated games. 11-16	£22
Six German Games – Aimed at pupils in their first year, but useful as revision for more advanced student of German. 12 years+	£22
More German Games – Aimed at pupils in their 2nd year of learning German. 12 years+	£22
The Cloze Program – Using context clues to predict is much more than a gap filling exercise. All ages	£26
An Introduction to Electronics – Brings together all the basic electronics required for a GCSE Physics or CDT course. 14-16 years	£26
Computer Control – This is a package of 3 programs simulating control of a greenhouse, a robotic arm & a chemical plant. 14-16 years	£26
The Nuclear Reactor – An interactive, menu driven program for GCSE pupils. Demonstrates & explains nuclear fission & the chain reaction. 14-16 years	£22
PUNCMAN Learning punctuation	
Puncman 1 & 2 for 7 – 13 years	£15
Puncman 3 & 4 for 8 – 14 years	£15
Puncman 5 & 6 for 8 – 15 years	£15
Yes Chancellor – A chance to take over number 11 at Downing Street. 12 years+	£18
Letters & Pictures – Introduces phonic skills to Infants 6-8 years	£15
Numbers & Pictures – Early number learning is a great fun (4-6 years)	£15
Note Invaders – Budding musicians can learn the notes on the Clef with this elegant game 3 programs (7 to Adults)	£15
Maps & landscapes No. 1 (9-14 years)	£18
Help Your Child learn Basic Map work No. 2 (9-14 years)	£18
Pirate – Educational Adventure (8-14 years)	£15
Spelling Week by Week (6-14 years)	£18

Archimedes Software

Bookbinder	£43
BUMPER DISC	£14
Bumper Disc 2	£14
Craftshop 1	£26
Craftshop 2	£26
Desktop Stories	£35
DigiSim	£35
Droom	£19
Jiglet	£27
Jigsaw	£28
Numerator	£60
Snippet	£26
Fun School 2A Red (up to 6 years)	£12
Fun School 2A Green (6-8 years)	£14
Fun School 2A Blue (8 years +)	£14
Gate Array Teaching System	£68

Continued→ → → → → → → → →

Computer Concept's ROMS

Communicator	£49
Disc Doctor	£28
Inter BASE	£49
Inter CHART	£25
Inter SHEET	£37
Inter WORD	£36
Mega-3 ROM	£76
Spell Master	£42
TERMI	£25
Wordwise	£24

Wordwise plus

£40

We are giving away absolutely **FREE,** the superb Word-Aid ROM worth £24, with every WORDWISE PLUS package bought from us.

Word-Aid

The most comprehensive utilities ROM for Wordwise-Plus

Extend the power of your Wordwise Plus word processor with this most advanced ROM from Watford. By utilising the powerful Wordwise Plus programming language, WordAid provides a whole host of extra features, all accessed via a special new menu option. This ROM has been personally approved by Mr Charles Moir, the author of WORDWISE PLUS.

- Alphabetical sorting of names and addresses.
- Text transfer options.
- Chapter marker.
- Epson printer codes function key option.
- Search and display in preview mode.
- Embedded command removal.
- Print Multiple copies of a document.
- Multiple file options for print and preview.
- Address finder.
- Label printer.
- Mail-merger.
- Number/delete/renumber.
- Clear test-segment area.
- BBC B, B+ and Master compatible.

Only **£24**

(N.B. Word Aid requires a Disc interface in your Micro)

Acorn ROMS

View 3.0 ROM	£45
Viewsheet (Acornsoft)	£36
Viewstore	£36
Viewspell with 80 track disc	£25
Viewplot Disc	£20
(Please specify for Master 128 or Compact)	
View-Index	£12
Overview packs 1 & 2	£65
Hi-View	£38

MINI OFFICE II

DISC Version for BBC B & B+	£14.00
DISC Version for BBC Master	£16.00
DISC Version for the Compact	£18.00

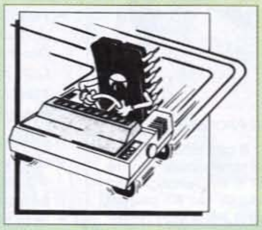
(When ordering please specify for which Micro & 40 or 80 track Disc)

All prices are exclusive of VAT

View Printer Driver Discs

Epson FX & RX 80	£10
Juki & Brother HR	£10

View Printer Driver ROM



View is a powerful word processor, but it seriously lacks in terms of printer driver support. With the View Printer Driver ROM, the View users will find themselves in the realms of advanced word processing.

The VPD extends View's printer command with a series of mnemonic commands. All standard highlight sequences are also supported. A large range of printers are supported by drivers contained within the ROM (the drivers can be downloaded and customised). Printers supported include: Epson's MX, RX, FX, LX, JX80 range, HI80, KP810/910, PW1080, JP101, HR15, M1009, GLP, Panasonic KX-P1081/2, JUKI 6100, etc.

Other printers are readily supported by defining a Printer Driver using the built-in Printer Driver Generator. The features mentioned below are available to both the built in Printer Drivers and user defined drivers (assuming the printer supports the features).

NLQ control, Underline, Bold, Proportional Spacing, Microspacing, Italic, Superscript, Subscript, Condensed, Enlarged, Double Strike, Set lines per inch numerically (e.g. LPI 6), Set characters per inch numerically (e.g. CPI 5), Select printer font, Select printer ribbon colour, Translation sequences, Emulation of BBC Character Set, Simple numeric expressions for certain operations, Full printer setup, Send control codes, Print prompt on screen, Redifinable Pad character, Pause for key press, Prompt to change daisywheel, and Execute ★ command when printing.

Other features include a very powerful on-screen preview, with bold, italic, underline, super/subscript, enlarged highlights, and a special printer driver to allow memory-based text to be previewed by View 1.4. Of course, View 1.4, 2.1 and 3.0 are all supported, as is Shadow RAM and 6502 Second Processors. The BBC B series and Master series of micros are supported. A comprehensive manual is supplied. All in all, a very professional product for the discerning user who wants power at their finger tips.

Price: Only £29

CREDIT CARD
24 HOUR
Ansaphone Hot Lines
(0923) 50234 or 33383

OFFICE MASTER

CentreSoft
Office Master

CASHBOOK – A complete "Stand Alone" accounting software package for the cash based sole trader/partnership business. It is designed to replace your existing cashbook system and will provide you with a computerised system complete to trial balance.

FINAL ACCOUNTS – Will take data prepared by the Cashbook module and produce a complete set of accounts as following: Trial Balance with inbuilt rounding routine; Notes to the accounts; VAT Summary; Profit & Loss A/C; Balance Sheet.

MAILIST – A very versatile program. Enables you to keep records of names and addresses and then print, examine, sort and find them, all with special selection techniques.

EASILEDGER – A management aid software tool designed to run alongside an existing accounting system. Essentially a Debit/Credit ledger system which can handle sales, purchase and nominal ledger routines to provide instant management information.

INVOICES & STATEMENTS – Greatly reduces the time and cost of preparing Invoices and Statements by storing essential information like customer names, addresses and account numbers. Has VAT routines and footer messages facility.

STOCK CONTROL – Allows you to enter stock received, stock out, summary of stock items and current holdings together with details of total cost, total stock to minimum level, units in stock ordering, quantity and supplier detail.

All this for only **£21** (Disc)

OFFICE MATE

CentreSoft
Office Mate

- DATABASE
- BEEBCALC SPREADSHEET
- BEEBPLOT GRAPHICS

DATABASE – Set up a computerised card index system with powerful search facilities.

SPREADSHEET – Offers many calculation and editing features

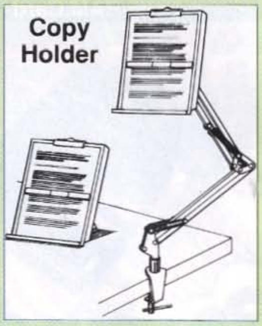
BEEBPLOT – Provides visual representation from Spreadsheet data.

Only £10 (Disc)

Acorn Speech Synthesizer package complete, for the BBC B Microcomputer

Special Offer £14

Copy Holder



Whether you want to type in your latest program or the draft of a new trilogy, Watford's manuscript holders are superb for holding your paper at the ideal height and angle to allow you to read and type in ease and comfort.

Available in 2 full A4 versions, desk resting and shelf clamping. Paper is held firmly by means of a plastic retaining ruler and a clip grip. (for resting books or magazines, the desk top version is recommended).

Desk Top **£7** (carr. £3)
Angle poise **£12** (carr. £3)

The Epson RX/FX/KAGA Printer Commands Revealed Handbook

Printer Commands Revealed

So you bought yourself a new printer, because the salesman in the shop showed you how clever it is and impressed you with all sorts of printouts to show its capabilities – he may even have offered you a special price.

However, now that you have got it home and connected it to your BBC microcomputer, you are wondering how to make it perform these magical tasks. The manual seems to give no clues, and when you type in the example programs, the computer throws the LPRINT statements back in your face.

Now what do you do, when this £400 piece of high technology refuses even to move its head, and you have stayed up until 2 in the morning with copious supplies of coffee, desperately trying to print something out? Once again, Watford Electronics comes to your help with our new book entitled 'THE EPSON FX-KAGA PRINTER COMMANDS REVEALED'.

This book describes in plain, easy to understand English, how to use and make the most of your KP810, PW1080A or any other Epson FX80 compatible printers like Panasonic KX-P1080/1, etc., with the BBC Micro, both from Basic and Wordwise.

It describes in detail how to obtain the maximum in graphics capability from your printer and includes full indexes allowing you to cross index the numerous commands. Every command is explained in detail, with an accompanying BBC Basic program and an example of its use from Wordwise.

£5.95 (No VAT)

ALL PRICES EXCLUDE VAT

BOOKS (No VAT on Books)

15 Hr Wordprocessing BBC/View	£6.95
15 Hr Wordprocessing BBC/WW & WW+	£6.95
30 Hour BASIC (BBC Micro)	£12.95
1st Word Plus Rel. 2 Manual	£10.00
A3000 Technical Manual	£29.00
Acorn DTP A Guide to	£17.00
Advanced User Guide for BBC	**£10.95**
Archimedes 1st Step – Beginners Guide	£9.95
Archimedes Assembly Language	£14.95
Archimedes BBC Basic Guide	£20
Archimedes DTP Manual	£10.00
Archimedes Operating System	£14.95
Archimedes Risc-Os Programmers Reference Manual	£79.00
Arm Assembly Lang. Prog. Manual	£15
Assembly Language Quick Ref.	£21.95
BASIC 2 – User Guide	£2
Basic V – A Dabhand Guide	£9.95
BBC Basic Guide (Archimedes)	£19.95
BBC Computer Handbook – The Complete	**£14.95**
BBC Micro – Within the	£11.95
BCPL User Guide	£9
C Big Red Book of	£8.95
C – A Dabhand Guide to	£14.95
C Programming Lang. 2nd Edition	£24.95
COMAL – Introduction to	£9.50
Deutsch Direkt! (Book only)	£5.95
DISC FILING SYSTEM (DFS) Operating Manual for BBC	£6.95
FORTH on the BBC Micro	£9.95
Hackers Handbook – New	£9.95
ISO-PASCAL Reference Manual	£9.95
Mastering Interpreters & Compilers	£14.95
Master 512 Guide – Dabs Press	£9.95
Master Operating System	£12.95
Master Reference Manual Part 1	£14
Master Reference Manual Part 2	£14
Master Reference Manual – Advanced	£17
Mathematical Programs in BBC BASIC	£9.95
MINI OFFICE II – A Dabhand Guide	£9.95
Mouse User Guide to BBC Micro – the Complete	£5.95
Example Programs on Disc for above	£4.95
PASCAL on the BBC Micro	£9.50
PASCAL Programming	£10.95
RISC Technical Manual 260 pg	£14.95
The Epson FX-KAGA PRINTER Commands REVEALED	**£5.95**
Understanding Interword – A Beginners Guide	£6.50
View 3.0 User Guide	£10
View Guide (View 2.1)	£5.00
View, Viewsheet & Viewstore – Mastering	£12.95
Viewsheet & Viewstore Dabhand Guide	£12.95
VIEW Dabhand Guide	£12.95
Viewsheet User Guide	£10
Viewstore User Guide	£10
Z88 – A Dabhand Guide	£14.95
Z88 Computing	£9.95
Z88 Magic	£14.95
Z88 Using Your	£9.95

BOOKS for IBM PC & Compatibles

1-2-3 For Business	£25.95
1-2-3 Mastering Release 3	£22.95
1-2-3 Mastering – 2nd Ed.	£20.95
1-2-3 Quick Reference	£7.95
1-2-3 Special Edition (QUE) – Using	£22.95
1-2-3 Using – Rel. 3	£25.95
8086/8088 Ass. Language Quick Ref	£8.45
8086/8088 Programming the	£17.95
Ability – Using	£12.95
Accountancy software in Business – Using	£14.95
Agenda – Using	£21.95
Aldus PageMaker – Using	£21.45
Amstrad 1512/1640 Step by Step – Using the	£POA
Amstrad Basic 2 User Guide	£9.95
Amstrad PC Programmers Ref Guide	£7.50
Amstrad PC1512-1640 Step by Step – Using	£10.95
Assembly Language – Quick Ref.	£7.95
Autocad 4th Ed – Mastering	£31.50
Autocad – Mastering Through Rel. 10	£28.95
Autocad – Inside Release 10	£27.95
Autocad – Inside 6th Ed	£32.45
C Introducing	£12.95
C Programming Language 2nd Ed	£26.95
C – Teach Yourself	£19.95
Clipper – Using	£22.95
Computer Users Dictionary	£9.95
Corel Draw Quick Ref Thro V1.2	£7.95
Corel Draw made easy	£24.95
dBase III Plus – Complete Reference	£19.95
dBase III Plus Handbook 2nd Edition	£22.95
dBase Instant Reference (III & III+)	£10.95
dBase IV – Handbook	£21.95
DOS & BIOS Function – Quick Ref Guide	£7.95
DOS Instant Reference (up to 3.3)	£6.95
DOS Power Tools (includes a disk)	£45.95
DOS – Programmers Ref. Manual 2nd Ed	£25.95
Excel IBM Version – Using the	£22.95
FAX – Managing with	£12.95
Framework III – Mastering	£22.95
GW Basic – Quick Prog. Ref	£8.95
GW Basic Users Guide & Ref	£12.95
Hard Disc management – Quick Reference Guide to	£4.95
Hard Disc – Using Your	£27.45
IBM PC & PS/2 3rd Ed	£21.70
Microsoft GW BASIC	£17.95
Microsoft Windows 3 – Using 2nd Ed	£20.95
Microsoft Windows Illustrated	£21.95
Microsoft Word 5_ Using	£20.45
MS-DOS – ABC's of 2nd Ed.	£17.95
MS-DOS Bible 3rd Edition	£24.95
MS-DOS First Book	£15.50
MS DOS for Beginners	£14.95
MS-DOS Quick Prog Ref Guide	£8.95
MS-DOS Masters – Tricks of 2nd Ed	£24.95
MS-DOS – Running 4th edition	£19.95
MS-DOS – Supercharging 2nd Edition	£17.95
MS-DOS Users Guide 3rd Edition	£27.95
MS-DOS – Using	£19.95
MS Windows 3 2nd Ed – Using	£22.95
Netware User Guide	£22.95
Networking Personal Computers 3rd Ed	£20.95
Norton Utilities – Inside the	£22.95
Novell Network – Mastering	£27.95
Novell Network – The ABC of	£21.95
Novell Network – Using	£27.45
PageMaker on IBM PC – Using	£22.95
Pagemaker – Using	£22.95
PCs & Compatible Computers for Beginners	£14.95
PC Crash Course 2.0 2nd Edition	£19.95
PC Tools – Quick Ref	£8.45
Programming Guide to EGA & VGA Cards	£25.95
Quattro – Mastering	£21.95
Quattro Pro VI – Using	£22.95
Smart – Using	£21.45
Smartware II – Using	£22.95
Smart, tips, tricks and traps (QUE)	£22.95
Supercalc 5 – Using	£27.50
Supercalc Professional	£17.95
Symphony Made Easy	£19.95
Symphony – Using Special Ed.	£27.45
Symphony 4th Edition – Mastering	£24.95
Turbo C Bible	£27.95
Turbo C++	£22.95
Turbo Pascal 5 – Using	£22.95
Turbo Pascal – Advance Techniques in	£22.95
Unix – Using	£27.45
Upgrading & Repairing PC's	£27.45
Ventura Mastering – 2nd Ed.	£22.95
Ventura Publisher – Using	£22.95
Ventura – Instant Reference	£10.95
Ventura – Tips & Tricks 2nd Ed.	£24.95
Window Programming 2nd Ed	£27.95
Window 3.0 Programming	£27.95
Window 3.0 Quick Ref.	£7.95
WORD for Windows – Using	£22.95
Wordperfect 5 – Using	£24.95
Wordperfect – Quick Reference V5	£8.95
Wordperfect 5.1 – ABC's of	£18.95
Wordperfect 5.1 – 1st Book of	£14.95
Wordperfect 5.1 – Mastering	£24.95
Wordperfect 5.1 Quick Start	£18.45
Wordperfect 5.1 – Using Special Ed	£25.95
Wordstar & CPM Made Easy	£15.75
Wordstar Using 5.5 & 6 3rd Ed	£25.95
Wordstar 6.0 Made Easy	£19.95
Wordstar 6.0 – Using	£25.95

Carriage on Books vary between £2 to £3.50, depending on their weight

New Release

ACORN TO PC

Stop the Confusion!

Do you have to use both Acorn computers and PC's? Would you like to use your Archimedes or A3000 in PC-emulation mode but are unsure of the new commands?

Although Acorn machines (such as the BBC B, the Master, the Archimedes and the BBC A3000) are mainly used in education, most commercial computers use other operating systems, particularly MS-DOS. As a result school computer users are at a disadvantage when moving into 'business' computing. PCs and other commercial computers use MS-DOS as the operating system, so commands for formatting, copying, backing up, printing and the modem are not the same. Even file names are written differently! And did you know that there is one Acorn command which, if used in MS-DOS, wipes everything in the current directory?

'ACORN TO PC' enables you to change over painlessly. It shows clearly and quicly how, why and where the two systems (Acorn and MS-DOS) differ. As with a foreign language dictionary, you can use the book to transfer either way – from Acorn to MS-DOS, or from MS-DOS to Acorn.

'ACORN TO PC' also acts as a handy reference guide to all Acorn star commands and their MS-DOS equivalents. It also has an extensive and readable explanation of the directory tree and hierarchical filing systems in general. Both DFS and ADFS Acorn systems are covered.

'ACORN TO PC' is written clearly and concisely by Dr. John Lockley, who has wide experience of writing and broadcasting. He is currently appearing as a regular contributor on Radio 5, and is co-author of 'The Complete BBC Computer User Handbook'.

Price: £15.95 (No VAT)

The Complete BBC Computer User Handbook

If you own a BBC B, B+, Electron, Master 128 or Master Compact, or Archimedes, then this is the book for you. It shows how to get the best from your machine, and how to make it work for you. The general style and level of presentation means that both the expert and beginner alike will feel comfortable with the quality and quantity of the material.
Subjects covered include the general use of computers, hardware design and peripheral devices like printers, disc drives, etc, and Networking. Programming hints and tips and various disciplines for making a better program are discussed in some detail, including debugging of specific errors. Standard programs are covered, such as wordprocessors, spreadsheets, databases, graphics, communications, etc., which brings you neatly on to the subject of using computers in the office or at work – even giving advice on writing and marketing your own programs.
A book you will enjoy to use as a reference, or read from cover to cover, over and over.

Only: **£14.95** (No VAT)

The Complete Mouse User Guide to BBC Micro

This manual has been written to reveal the secrets of the mouse. It explains all the principles required by the hardware and associated software, and also example listings for inclusion into custom programs. The manual first details the basic principles of the mouse and a simple program which uses these principles. This information should be adequate for most applications. However, it is possible to improve the performance of the mouse by expanding on the principles already used in the software. This is again fully explained and an example program given.
It is possible to gain a full understanding of the mouse from this manual. For those not interested in exactly how the mouse functions, complete example programs are also included. These may be typed directly into the micro, without the need for any understanding of the hardware or software involved, enabling the mouse to be used for custom applications.

Price £5.95 (No VAT)

Example programs on Disc £4.95

Beeb PC (BASIC)

Beeb PC Basic is designed for program authors wishing to convert programs so that they will run on IBM personal computers. To convert BBC BASIC programs manually can waste days of valuable time with every occurrence of common statements such as PROC, DEFPROC, TAB, having to be changed.
Beeb PC (BASIC) automates many of these changes, and will convert majority of BBC statements that are invalid for IBM BASIC into equivalent acceptable statements. In addition BBC BASIC data files can be converted to IBM BASIC format, with support provided for all BBC data formats:- INTEGER, REAL & STRING.

Price: £38

Beeb DOS 3.0

(Now reads Archimedes Discs)

The BBC and IBM PC's are the most popular micros in the UK. The BBC is firmly established in the education sector and the IBM is the industry standard in the business world. The pools of information and applications held on these computers are immense, yet the means of passing information between them are very limited. Beeb DOS provides a practical method of transferring information between these two micros.

Beeb DOS is a collection of utilities which run on the PC's and enable it to read and write information on BBC discs. You can transfer files between your PC's 360K floppy, high density floppy or hard disc and your BBC discs. In addition Beeb DOS allows you to catalogue, format and compact BBC discs and delete, re-name, lock and unlock BBC files, all on PC's.
Each Beeb DOS utility is written in IBM assembler and is run directly from PC or MS-DOS. The Beeb DOS utility can be run from floppy disc, hard disc or RAM drive.

Beeb DOS is supplied on an IBM 5.25", 360K disc complete with a comprehensive operating manual.
(Will only work on 360K Disk Drives & read only ADFS and Watford DDFS – not DFS).

Price: £39

(Please write in for technical literature)

Continued→ → → → → →

Panafax Facsimile

Top quality Panasonic Fax machines, at Watford's budget prices. Ideal for Schools, Colleges, Home & Offices. Supplied complete with telephone handset & 12 months on-site maintenance warranty.

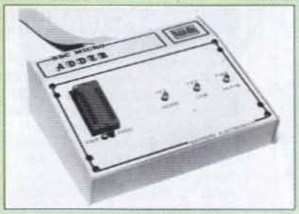
- UF120 £339 • UF121 £349

(P.S. We stock full range of Panafax)

Watford Electronics are:

- Acorn Qualified Dealer & Econet Referral Centre
- ARIES PC Dealer/Distributor
- Canon Authorised Printer Dealer
- Cambridge Computer Dealer
- Computer Concept Premier Dealer
- EIZO Monitor Dealer
- Microvitec Appointed Dealer
- NEC Appointed Dealer
- Panasonic Premier Dealer
- Roland Plotter Official Dealer
- Star Printer Premier Dealer
- Taxan Appointed Monitor Dealer
- 3M Media Premier Distributor

ADDER



The Adder unit connects to the User Port and draws its power from there too. The EPROM is mounted in a top quality ZIF socket. There are no switches or controls as Adder is entirely software controlled.

The Adder software provides sophisticated facilities for programming EPROMs from a RAM image produced by loading disc files. The software is menu driven and designed for ease of use.

Features:

- Two ultra fast programming algorithms or standard slow algorithm.
- Supports standard 21V programming and newer 12.5 volt EPROMs. (Software switched).
- The RAM image to be programmed can be built up in many ways. Sections of image can be loaded separately. Part programming. Read EPROM. Edit data in memory.
- Automatic processing to handle a list of files to program into the EPROM.
- Automatic disc buffering to allow programming of 32K 27256 devices from a 32K file without extra effort.
- Verification gives detailed error list and checksums are maintained. There is also a blank check facility.
- Works with all standard filing systems. Generates header code for RFS ROMs to allow Basic programs etc. to be stored in EPROM. More than one file per ROM permitted.
- Programs the following EPROMs: 2516, 2716, 2532, 2732, 2764, 27128, & 27256.

£65 (£5 Carr)

TEX EPROM ERASERS

EPROMs need careful treatment if they are to survive their expected lifetime. Over erasure of EPROMs very rapidly turns them into ROMs! The TEX erasers operate following the manufacturers specifications to give the maximum possible working life by not erasing too fast.

- **ERASER EB** – Standard version erases up to 16 chips. £34
- **ERASER GT** – Deluxe version erases up to 18 chips. Has automatic safety cut-off to switch off the UV lamp when opened. £36
- Spare UV tubes. £12

CREDIT CARD 24 HOUR Ansaphone Hot Lines (0923) 50234 or 33383

Servisol Foam Cleaner

This king size multipurpose foam cleaner spray is ideal for cleaning Keyboard, Monitor, Disc Drive & Computer furniture surfaces.

£2.50

Antistatic Aerosol Spray

Ideal for cleaning and preventing static build-up on TV/Monitor Screens.

£2.50

Aerosol Dust Spray

Ideal for removing dust & dirt from Keyboard & similar inaccessible spaces. **£3**

Spares for BBC Micro

UHF Modulator	£4	16MHz Crystal	£2
Speaker Grill	£1	17.734 MHz Xtal	£2
Speaker	£3	32.768MHz Xtal	£1
Keyswitch	£1.50	BBC B Refurbish	
Master PSU	£59	Casing	£25
Master Keyboard	£62	Keyboard	£46
Master Casing	£49	Power Supply	£59

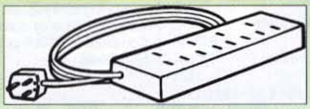
Replacement Flexible 17 way Keyboard Connector **£4**

Surge Protector Plug

Fitted in place of your normal mains plug, this device protects your equipment (and data from corruption), against mains high voltage transient spikes/surges caused by lightening or thermostats switching.

Protection for only **£8.50**

4 Way Mains Distribution Socket



4 way top quality mains trailing sockets. Supplied wired up with mains plug ready for use. Can be screwed to floor or wall if required. Very useful for tidying up all the mains leads from your peripherals.

£9.50

Aries Spike Cleaner Unit

A 4 way mains distribution unit as above with a built-in Surge Arrester, providing protection for your complete Computer/Hi-Fi System

£14.95

ROM Extraction Tool

This extremely useful tool allows you trouble free chip insertion and removal from your computer by distributing the removal force over the whole body of any 24 or 28 pin chip. **£2**

Metal Chip Extractor **£3**

28pin DIL Header Plug

SOLDER type **£1.50** IDC CRIMP type **£1.95**

8 Way DIP Switch

Increase the speed of your Disc Drives by soldering this switch to your BBC B or B+ keyboard

Only **£1.00**

---

28 pin ZIF SOCKET (Textool) **£6.95**

Connecting Leads

(All ready made and tested)

CASSETTE LEADS 7 pin DIN Plug	
to 3 pin DIN Plug + 1 Jack Plug	£2.50
to 7 pin DIN Plug	£3.00
to 3 Jack Plugs	£2.50
6 pin DIN to 6 pin DIN Plug (RGB)	£3.00

Disc Drive Power Leads

Supply from BBC power supply to standard Disc Drive Connection: Single **£3.00;** Dual **£3.75**

Disc Drive Interface Leads

BBC to Disc Drives Ribbon Cable
Single **£4** Twin **£6**

Miscellaneous Connectors

	Plugs	Sockets
RGB (6 PIN DIN)	50p	75p
RS423 (5 pin Domino)	70p	80p
Cassette (7 pin DIN)	40p	95p
ECONET (5 pin DIN)	35p	50p
Paddles (15 pin 'D')	150p	250p
Disc Drive Plug 4 way	100p	–
6 way Power Connector	120p	150p

Watford DATA DUCK

Convert two single Disc Drives into one Dual Drive with this simple external unit (Suitable for Disc Drives with PSU. For Disc Drives without PSU, you will also require Watford Power Duck, see below).

£14

Watford POWER DUCK **£8**

CHIP SHOP

1 MB-10 DIL D-RAM	£4.50
1 MB ZIP D-RAM	£4.90
256K x 4-8 DIP	£4.75
256K x 4-8 ZIP	£4.80
DS3691	£4.50
DS88LS120	£5.25
LM324	£0.45
SN76489	£5.50
SAA5050	£8.75
UPD7002	£6.00
2764-250nS	£3.00
27128A-250nS (12V5)	£2.50
27128-250nS (21V)	£4.00
27256-2	£3.00
27512-2	£4.50
27C101G (1 Meg)	£7.00
4013	75p
4020	£1.00
4164-10	£1.55
4464-10	£3.50
4816 RAM	£2.00
41256-8	£2.00
41256-10	£1.50
6264LP-8K	£4.00
6502A CPU	£5.00
65C02 3M	£9.75
65C12	£9.00
6512A	£10.00
6522	£4.00
6522A	£5.00
62256ALS-15	£10.00
62256P-12	£8.50
6818	£4.00
6845SP	£6.00
68B50	£2.95
68B54	£7.50
7438	50p
74LS00	50p
74LS04	50p
74LS10	50p
74LS123	£1.00
74LS163	£1.00
74LS244	£1.00
74LS245	£1.00
74ALS245	£2.75
74LS373	£1.00
74LS393	£1.00
75453	£1.00
75159	£3.00
9637	£2.00
ICL7673PA	£3.00

Assorted ROMS

ACORN ADFS	£25
ACORN BASIC 2 plus User Guide	£22
Acorn BCPL	£42
ACORN DNFS	£17
Acorn FORTH	£32
Acorn Graphics	£25
Acornsoft C Disc	£36
Acorn LISP	£19
Acorn OS B+	£25
Acorn OS 1.2	£14
Basic Editor	£24
BBC PCB Designer	£49
Beebmon	£22
Buffer & Backup	£20
Communicator	£49
Dump Out 3	£25
EPSON NLQ ROM	£25
Graphics Extension Rom	
GXR-B	£21
GXR-B+	£22
ICON Master	£28
Logotron LOGO	£43
MASTER OS ROM	£38
Master ULA (47)	£15
Master ULA (60)	£10
Micro Prolog	£25
Microtext Disc	£46
Microtext Rom	£199
NLQ DESIGNER	£25
Numerator – Archi	£69
Numerator – BBC	£39
Pendown ROM	£32
Rom Manager	£20
ROMIT	£29
SERIAL ULA	£13
TED	£35
Termulator B, B+	£28
Termulator Master	£32
Video ULA	£14
ULTRACALC II	£26
1Mb OS ROM	£39

Hi-Speed, Low Cost Archi Hard Disc Card

Watford's NEW Innovative IDE interface card brings the latest advances in PC hard disc technology to within reach of the Archimedes user. Over the last few years PC hard disc manufacturers have been working towards the goal of integrating the drive controller onto the hard disc, eliminating the need for an expensive controller card.

Now this has been achieved and drives are available under names such as IDE (Integrated Drive Electronics) or ATA (AT Attachment). These drives require only simple interfacing to a PC motherboard and reduce the overall cost of installing a hard disc. Because of the integration of the controller and drive electronics onto one compact board, manufacturers have been able to include extra features into the drive, such as Caching, where tracks are buffered in fast memory, reducing access times and increasing throughput. All these benefits make IDE drives far more attractive than conventional ST506 drives or SCSI.

Watford's advanced interface allows IDE drives to work on any Archimedes machine, speeds in excess of SCSI devices can be obtained at a fraction of the cost of a SCSI drive.

Up to four drives are supported by the IDE filing system IDEFS, up to two drives can be attached to each expansion card, up to four cards can be installed in a machine. An optional 20Mb or 40Mb hard disc can be supplied on the podule expansion card itself, with its fast transfer rate and power saving modes the drive is ideal for storing commonly used software such as the !Fonts application.

A powerful security feature has been provided with the two unique commands *IDELock and *IDEUnlock, ideal for educational establishments where hacking or tempering may be prevalent that may lead to loss of data. Once locked, the configuration can not be changed until a secret password is used. The !IDEForm Write Protect option is particularly useful in conjunction with *IDELock as it will prevent any unauthorised deletion of data.

By an innovative use of on-board memory, the card will remember its configuration, even if moved to another slot or even a different machine, this also includes the unique security features.

Hardware

- Single width EuroCard
- Supports proposed ANSI ATA (IDE) specification
- Fast 16 bit MEMC interface interrupt driven to support background disc operations
- 5 Mbytes per second peak transfer rate
- Built in Non Volatile RAM to hold configuration
- LED activity indicator
- 37 way D type socket for external drives
- Optional on-card 20Mb or 40Mb hard disc
- Up to two drives (master and slave) per card
- Multiple cards per machine (up to four)

Software

- Conforms fully to the Acorn IDE Specification
- All software supplied in ROM
- Filing system 'IDEFS'
- Desktop filer with drive ready detection and disc name under icon
- !IDEForm, WIMP based configuration and formatting software
- Drives can be individually write protected
- Up to four drives over multiple cards
- Power saving standby modes supported with configurable timeout
- Drives can be used without translation in native mode for minimum overhead
- !IDEFSDisk, creates PC emulator hard discs

*Commands

*IDELock
*IDEUnlock
! DEFS
Selects the IDE filing system 'IDEFS'.
*IDEDrives
Displays the configuration and native characteristics of installed drives.
*Configure IDEFSDirCache
*Configure IDEFSBuffers
*Configure IDEFSDrive

Typical transfer speeds

Prairie Tek	20Mb	650K bytes per second
Seagate	43Mb	800K bytes per second

Prices

Part No.	Capacity	Access Speed	Price
ADA 0520	44Mb	28mS	£249
ADA 0530	100Mb	16mS	£395
ADA 0570	200Mb	15mS	£535
ADA 0580	330Mb	15mS	£POA

All the above 3.5" drives are supplied complete with Controller Card, cable & Software on ROM. (Internal fitting). For use with A300/A400/A500 series machines.

For A3000 users an additional external Case and PSU will be required.

AAA 0300 External Case & PSU for A3000 £85

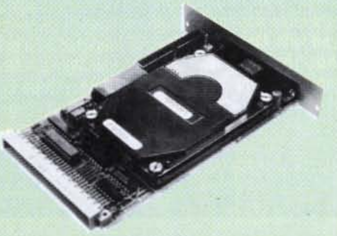
Internal Hard Disc Drives for A3000

ADA 0700	21Mb	23mS		★£315
ADA 0720	44Mb	28mS	Available Soon	£TBA
ADA 0730	89Mb	18mS		£TBA

Supplied complete with Podule, Fan, Cable & Fitting instructions.

★ Tentative Launch Price

IDE Hard Card



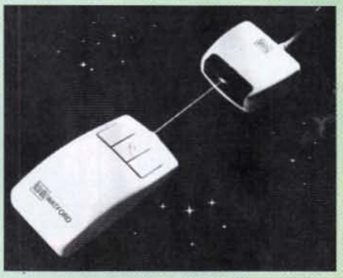
2.5" miniature Hi-Speed Hard Disc Drives on Controller Cards for Archimedes

"Simply plug and play"
For Archimedes A300 and 400 series machines

ADA 0650	21Mb	23mS	£345
ADA 0660	44Mb	28mS	£495
ADA 0670	89Mb	18mS	£TBA

(Can be used as a Removable Hard Drive)

Archimedes Cordless Mouse



Ever found that using a mouse on a busy desktop has its problems? The cable is always being caught up in papers, tangled round equipment and other cables etc, and what about that cup of coffee spilled over your work!

Watford Electronics' new Cordless Mouse solves these problems by removing the cause for concern - replacing the cable with a simple infra red link. It still provides all the speed and easy control of a conventional mouse, but with complete freedom. In use, there are no operating differences between the standard mouse and the new cordless mouse so all mouse functions and mouse driven RISC software will be fully compatible. Pinpoint accuracy is ensured by a unique Accelerator button, which, when pressed, moves the pointer by just a tiny amount for a large slow movement of the mouse, but by a large amount for a quick wizz of the mouse.

Features

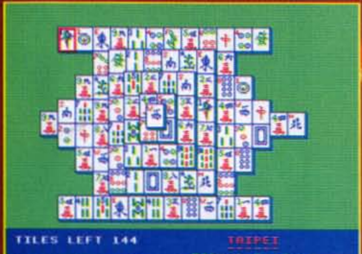
- Infra Red Signal Transmission
- High Resolution 200 DPI
- High Tracking Speed of 600mm/s up
- Anti-static Silicon Rubber Coated Ball
- Low Friction Teflon Footpads
- Power - by two AAA size batteries (not included)
- Automatic Standby Mode after 5 seconds inactive
- Auto Power Shut-Down after 20 seconds inactive

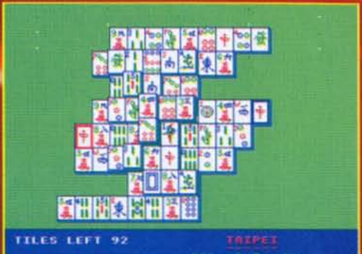
Price £65

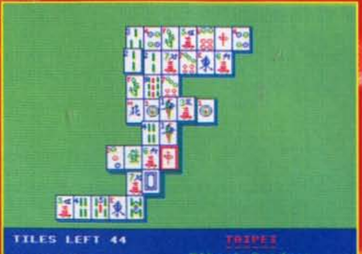
Watford Electronics

250 Lower High Street, Watford WD1 2AN, England
Tel: 0923 37774/240588 Fax: (0923) 33642 Telex: 8956095

Prices subject to change without notice and available on request. ALL OFFERS subject to availability. Mail Order and RETAIL·SHOP. Trade and Export inquiries welcome. Government and Educational Establishments' OFFICIAL ORDERS Accepted. Shop Hours: 9.00am to 6.00pm, Monday to Saturday. Thursdays 9am to 8pm. (Free Customer's Car Park). VAT: UK customers please add 17.5% VAT to cost incl. Carriage. CARRIAGE: Unless stated otherwise, minimum £2 on all orders. £3 on Larger items. On bulkier items, £7 Securicor charge applies (UK mainland only). Overseas orders, carriage is charged at cost. Specifications of all products are given in good faith but are subject to change without notice. Some items vary in their availability. Watford Electronics Terms and Conditions are available upon request. Please ring for latest delivery situation.







Taipei

Albert Gardner presents his top class version of the popular Chinese game

TAIPEI is an infuriatingly addictive patience game played with Mah Jong tiles. Although the rules are deceptively simple there is a great deal of strategy involved in winning.

The Mah Jong set consists of 36 different pieces: There are three suits called Bamboos, Circles and Characters with numbers one to nine in each suit, although 1 Bamboo is depicted as a bird. Then there are four Winds – North, South, East and West – three Dragons (Red, Green and White), one Flower and one Season. Each occurs four times, so there are 144 tiles altogether.

In play the tiles are laid out in a five-layer pyramid and you have to remove all the tiles in matching pairs. However, the only ones which can be removed are those at the ends of the rows on each level, and then only if they are not covered by a tile on a higher level.

This means, for example, that you cannot take the tiles in the two rows of two in the centre until the one at the very top has gone.

Notice that at the start of the game both ends of the two middle rows on the bottom level are blocked by single tiles spreading across both rows.

At the start the program asks for a deal number. For a random deal enter zero, or to ensure a different deal each time you play enter today's date, such as 120991 for September12,

```
   10 REM TAIPEI
   20 REM by Albert Gardner
   30 REM (c) The Micro User
   40 MODE7
   50 ENVELOPE1,1,0,0,0,0,0,0,0,-2,-2,
60,0
   60 *FX212,0
   70 *FX213,31
   80 PROCprt("TAIPEI",5,2,1)
   90 PROCprt("MAH JONGG PATIENCE",8,1,1
):PROCprt("by",11,3,0)
  100 PROCprt("Albert Gardner",13,6,1)
  110 PROCprt("Deal Number      ",17,5,0)
:INPUTTAB(24,17)""M%
  120 IFM%=0 M%=TIME:N%=0 ELSE PRINTTAB(
15,19);CHR$133;"Redeals ";:INPUT""N%
  130 PAGE=&2100:CHAIN"TAI2"
  140 :
  150 DEFPROCprt(A$,L%,C%,D%)
  160 IF D% A$=CHR$141+A$
  170 X%=(40-(LENA$))DIV 2 -1
  180 FORY%=L%TOL%+D%:PRINTTAB(X%,Y%);CH
R$(128+C%);A$:NEXT
  190 ENDPROC
```

Get it right ✓

```
 10 =    0 0
 20 =    0 0
 30 =    0 0
 40 = 8AFC C
 50 = 3800 F     100 = D16E D    150 =  686 6
 60 = 2726 B     110 = 6AE2 6    160 = 246E E
 70 = 7710 0     120 = AB13 1    170 = A5ED 4
 80 = 6275 3     130 = D4BD 7    180 = 2EBA 6
 90 = 24D1 F     140 = 9719 1    190 = EDOF E
```

```
   10 REM TAI2
   20 REM by Albert Gardner
   30 REM (c) The Micro User
   40 *L.TAIDATA
   50 *TAPE
   60 CALL&4600
   70 *TV0,1
   80 MODE1:t%=&70:b%=&71:r%=&73
   90 l%=&7A:f%=&7B:e%=&7C:u%=&7D
  100 E%=&1AE0:F%=&1B70:G%=&1B98
  110 tl=&1CC6:spr=&1D1D:prt=&938
  120 blnk=&1DBD:off=&1E2E:chk=&1FC3:ch=
&1FC2:w=&2084:!&74=&C870C37
  130 c%=&E27:d%=&1BC8:d%?37=1
  140 VDU23,1,0;0;0;0;19,0,4;0;19,2,2;0;
  150 PROCinit
  160 O%=144:U%=2:V%=1:W%=0:REPEAT:CALLc
hk:PROCpair:UNTIL?ch=1
  170 IF D%=2 PROCend
  180 IF D%>3 N%=N%+D%-4:GOTO 150
  190 MODE7:PRINTTAB(8,10)"Deal Number w
```

1991, and zero redeals when asked.

To replay a deal from a previous session enter its deal number and, when asked, its redeals. The other program now loads and presents the requested deal.

To remove a pair, move the red box on to the the first tile using the Z, X, * and ? keys and press the spacebar. Notice that when you move the box it will only go on to tiles that can be removed, and that if you move off one end the box will reappear at the opposite end, and similarly from top to bottom.

Now move the box, which turns blue, on to the second tile and press space again. Provided the two tiles match they will disappear, but if not the program will give a soft beep. In either case the blue box vanishes and the red box again becomes active. If you change your mind after selecting the first tile, either reselect the same tile or deliberately choose one which does not match.

If at any stage no more matching pairs are available, the program gives a beep and announces *Game Over*. You can then either quit, restart the same deal or try another one.

Help mode

If you press the H key when the red box is active the program enters Help mode and displays a possible matching pair. Each time you press H in help mode the program will display another possible pair, until no more are left. In this mode you can select the suggested pair simply by pressing the spacebar.

Any key other than H or space exits from Help Mode. Note that if three or four identical tiles are all available the program will only indicate one of the possible pairs.

To restart the same deal at any stage press S, or to restart with a fresh deal press D. After finishing, answer Y or N for another game, and if Y you can then choose the same deal or a new one with S or D. To leave the program at any time press Q. When you finally quit, the program will tell you the deal number and number of redeals so that you can note them and try the same deal next time if you want to.

Type in Listings I saving it as Taipei and then Listing II, save as Tai2. Check each program using the checksums to ensure you've made no typing errors.

Before you can play you must create the data file. To do this, type in Listing III and run it when you are sure it is correct. It will tell you when it is ready to save the data file, and tape users should save directly after Tai2.

Press any key, and the data file will be saved. Once the data file is safely created. Now to play just CHAIN "Taipei".

```
as ";M%;TAB(10,12)"Redeals ";N%
  200 END
  210 :
  220 DEFPROCinit
  230 I%=RND(-M%)
  240 FORI%=0TO3:FORJ%=1TO36:E%?(J%+36*I
%)=J%:NEXT:NEXT
  250 FORJ%=0TON%:FORI%=1TO144
  260 L%=RND(144):K%=E%?I%:E%?I%=E%?L%:E
%?L%=K%:NEXT:NEXT
  270 RESTORE:FORI%=1TO8:READ I%?F%,I%?G
%,I%?&1BC0:NEXT
  280 DATA 2,13,0,4,11,10,3,12,19,1,15,3
1,2,15,45,3,12,56,4,11,65,2,13,75
  290 FORI%=9TO40:F%?I%=16:G%?I%=0:NEXT
  300 FORL%=1TO3:FOR J%=L%+1TO8-L%
  310 J%?(F%+8*L%)=L%+4:J%?(G%+8*L%)=11-
L%:NEXT:NEXT
  320 F%?36=7:F%?37=7:G%?36=8:G%?37=8
  330 !t%=0:!l%=&2121
  340 ?&84=0:!&85=&E00:!&8A=&100:L%=-1
  350 FORJ%=0TO9:FORI%=-1TO18
  360 CALLblnk:CALLprt:NEXT:NEXT
  370 VDU28,0,31,39,28:CLS
  380 FORL%=0TO4:FOR J%=1 TO 8
  390 FORI%=1TO15:CALLtl:NEXT:NEXT:NEXT
  400 F%?5=1:PRINTTAB(1,1);"TILES LEFT 1
44";:COLOUR1:PRINTTAB(25,1);"TAIPEI";TAB
(25,2);"ÑÑÑ";:COLOUR2:PRINTTAB(21,3);
"Albert Gardner";:COLOUR3
  410 ENDPROC
  420 :
  430 DEFPROCend
  440 CLS:COLOUR1:PRINT" GAME OVER"
  450 COLOUR3:IFO%GOTO 490 ELSE PRINT" Y
ou Win"
  460 FORI%=1TO6:READ X%:SOUND1,1,X%,6
  470 NEXT:GOTO 500
  480 DATA 63,71,79,83,83,63
  490 VDU7:PRINT" Tiles left ";O%
  500 PRINT " Another game?":T%=GETAND&D
F:IF T%=89 D%=5 ELSE ENDPROC
  510 IF O% PRINT" Same Deal (S) or Diff
erent (D)?":T%=GETAND&DF:IF T%=83 D%=4
  520 ENDPROC
  530 :
  540 DEFFNt(I%,J%,L%)
  550 =(USR(&1C43))MOD256
  560 :
  570 DEFFNx
  580 =(U%=1 OR U%>13 OR W%=4)
  590 :
  600 DEFPROCpair
  610 IF?ch=1 ENDPROC
  620 D%=0:PROCM:REPEAT:*FX21,0
  630 T%=GETAND&DF:Q%=D%
  640 IFT%=81 D%=3:?ch=1
  650 IFT%=83 D%=4:?ch=1
  660 IFT%=68 D%=5:?ch=1
  670 IFT%=15 PROCmark:PROCdown:PROCM
  680 IFT%=26 PROCmark;PROCup:PROCM
  690 IFT%=90 PROCmark:PROCleft:PROCM
  700 IFT%=88 PROCmark:PROCrt:PROCM
  710 IFT%=72 IF D%=0 PROCH
  720 IFT%=0 PROCsp
  730 UNTILD%>1
  740 ENDPROC
  750 :
  760 DEFPROCup
  770 IF FNx V%=4
  780 REPEAT:IFV%=1 V%=8 ELSE V%=V%-1
  790 UNTIL G%?V%:PROCU
  800 ENDPROC
  810 :
  820 DEFPROCdown
  830 IF FNx V%=5
  840 REPEAT:IFV%=8 V%=1 ELSE V%=V%+1
  850 UNTIL G%?V%:PROCU
  860 ENDPROC
  870 :
  880 DEFPROCV
  890 PROCU:PROCM:ENDPROC
  900
```

➤

➤

```
 910 DEFPROCU
 920 CALLw:IFW%=5 PROCleft
 930 ENDPROC
 940 :
 950 DEFPROCleft
 960 IFW%=4 U%=7
 970 REPEAT U%=U%-1:IFU%<F%?V% U%=G%?V%
 980 CALLw:UNTIL W%<5:ENDPROC
 990 :
1000 DEFPROCrt
1010 IFW%=4 U%=8
1020 REPEAT U%=U%+1:IFU%>G%?V% U%=F%?V%
1030 CALLw:UNTIL W%<5:ENDPROC
1040 :
1050 DEFPROCH:H%=0
1060 COLOUR1:PRINTTAB(1,3)"HELP mode";
1070 REPEAT:H%=H%+1:UNTILd%?H%:IFH%=37
GOTO1110
1080 PROCmark:U%=(c%?H%)MOD16:V%=(c%?H%
)DIV16:PROCV
1090 PROCsp:U%=(d%?H%)MOD16:V%=(d%?H%)D
IV16:PROCV:T%=GETAND&DF
1100 IFT%PROCC:IFT%=72 Q%=0:GOTO 1070
1110 PRINTTAB(1,3)SPC(9);:COLOUR3
1120 ENDPROC
1130 :
1140 DEFPROCM
1150 Q%=D%+2
1160 DEFPROCmark
1170 IFD%=1ANDU%=R%ANDV%=S% ENDPROC
1180 K%=FNt(U%,V%,W%):IFK%=0 ENDPROC
1190 I%=U%:J%=V%:L%=W%:!t%=0:!l%=&2121
1200 CALLspr:A%=Q%:CALL&900
1210 ENDPROC
1220 :
1230 DEFPROCsp
1240 IF FNx V%=4:IFW%=4U%=7
1250 IFD%=0 D%=1:R%=U%:S%=V%:Z%=W%:ENDP
ROC
1260 IFR%=U%ANDS%=V% D%=0:ENDPROC
1270 IFFNt(R%,S%,Z%)=FNt(U%,V%,W%) PROC
rem ELSE VDU7:PROCC
1280 ENDPROC
1290 :
1300 DEFPROCrem
1310 CALLoff:R%=U%:S%=V%:Z%=W%:CALLoff
1320 O%=O%-2:IF O%=0 GOTO1350
1330 IF D%=1 PROCrt ELSEIF D%=2 PROClef
t ELSE PROCdown
1340 PRINTTAB(12,1);SPC(4);TAB(12,1);O%
1350 D%=2:ENDPROC
1360 :
1370 DEFPROCC
1380 Q%=1:PROCmark:D%=0:U%=R%:V%=S%:W%=
Z%:ENDPROC
```

Get it right ✓

```
  10 =    0 0
  20 =    0 0
  30 =    0 0
  40 =  BE7 7
  50 = CD93 B
  60 = 4EBF 9
  70 = DDC0 5
  80 = 6BE1 7
  90 = C8EA C
 100 = 5085 5
 110 = EBB9 F
 120 = 57FF B
 130 = C4C2 6
 140 = 746A 2
 150 = DEBB B
 160 = 443D 0
 170 = 9E13 A
 180 = 2D1E 2
 190 =  D0D 9
 200 = FD2E F
 210 = 9719 E
 220 = 344C 7
 230 = 3FED B
 240 = CF22 A
 250 = BD46 5
 260 = 9329 A
 270 = FEA7 4
 280 = 512F C
 290 = 5A0B 6
 300 = 99DB A
 310 = 68BF A
 320 = F0B4 E
 330 = 4C66 9
 340 = A843 3
 350 = BF78 2
 360 = F783 2
 370 = 8706 C
 380 = 52B6 5
 390 = 7D4F C
 400 = A757 A
 410 = ED0F 7
 420 = 9719 2
 430 = 1021 3
 440 = BC48 3
 450 = 2D2E A
 460 = 707E 1
 470 = 737E D
 480 = C78F E
 490 = BF5C E
 500 = 37DD 3
 510 =  E2A 7
 520 = ED0F 9
 530 = 9719 1
 540 = EB41 A
 550 = 725C F
 560 = 9719 1
 570 =  9E0 D
 580 = 6FF6 7
 590 = 9719 7
 600 = 906B 5
 610 = E25F 2
 620 = 94E8 E
 630 = A885 6
 640 = 4CAA 5
 650 = 5304 8
 660 = 7163 A
 670 = 631F D
 680 = FDB2 0
 690 =  451 5
 700 = DA07 A
 710 = D541 3
 720 = D1A4 0
 730 = D79F C
 740 = ED0F 5
 750 = 9719 7
 760 = 958C 9
 770 = F37D 1
 780 = 50C8 6
 790 = F64F C
 800 = ED0F A
 810 = 9719 C
 820 = A9FD 8
 830 = E35C 4
 840 = 3908 B
 850 = F64F 0
 860 = ED0F 7
 870 = 9719 2
 880 = 6855 9
 890 = 1C26 A
 900 = D1AD 0
 910 = 5836 6
 920 = BDB2 A
 930 = ED0F 4
 940 = 9719 A
 950 = 68C6 A
 960 = 3EA8 7
 970 = EE1B 8
 980 = 1DA1 7
 990 = 9719 7
1000 = 4C9F 2
1010 = CF47 5
1020 = AE84 0
1030 = 1DA1 5
1040 = 9719 8
1050 = C11B F
1060 = 1725 D
1070 = CB11 4
1080 = 561E 7
1090 = E624 1
1100 = EC8E 9
1110 = 750A F
1120 = ED0F D
1130 = 9719 F
1140 = CB0F D
1150 =  C3D 7
1160 = EEDB 8
1170 = CEF5 F
1180 = DF6C 7
1190 = 90AF 0
1200 = DF5F D
1210 = ED0F A
1220 = 9719 D
1230 = 3F2A F
1240 = DECB 4
1250 = EE6D 2
1260 = 4E45 5
1270 = 6E0E 3
1280 = ED0F C
1290 = 9719 7
1300 = 9B01 4
1310 = C562 8
1320 = 4206 8
1330 = CFE7 6
1340 = 962F C
1350 = FEA9 F
1360 = 9719 F
1370 = 2AC1 7
1380 = BE8F A
```

```
  10 REM TAIPEI DATA GENERATOR
  20 REM by Albert Gardner
  30 REM (C) The Micro User
  40 MODE7:HIMEM=&5400:VDU28,0,24,39,20
  50 FORI%=&5400 TO &5424 STEP 4
  60 !I%=&F5FAF5FA:NEXT
  70 FORI%=&5460 TO &6930 STEP 4
  80 READ A$:!I%=EVAL("&"+A$):NEXT
  90 FORI%=&6A00 TO &6A3C STEP 4
 100 READ A$:!I%=EVAL("&"+A$):NEXT
 110 PRINT"READY TO SAVE - PRESS A KEY"
 120 A=GET
 130 *SAVE TAIDATA 5400 6A40 3000 3000
 140 END
 150 DATA DDDD99FF,FF88DDDD,EFEFFFFF
 160 DATA E8F9E8F8,7F7F3FDF,BABBB877
 170 DATA EEEEEEEE,EEE6E6EE,88FFFFFF
 180 DATA FFFFFFFF,CB50EAF9,CFCFC7CB
 190 DATA F3C300B9,FFFB7B7B,EEEEEE22
 200 DATA EEEEEEEE,FFFFFFFF,FFFFFF
 210 DATA FFEFEFEF,FFFFFF,7FFFFFFF
 220 DATA FFFF7F,EEEEEEEE,EEEEEE
 230 DATA DD55BBFF,FF1177BB,FEFEFFFF
 240 DATA FEFEFEFE,F7F7FFFF,F7F7F7F7
 250 DATA EEEEEEEE,EEEEEEEE,FFFFFFFF
 260 DATA FFFFFFFF,FFFFFEFE,FEFEFEFF
 270 DATA FFFFF7F7,F7F7F7FF,EEEEEEEE
 280 DATA EEEEEEEE,FFFFFFFF,FFFFFF
 290 DATA FEFEFEFE,FFFFFE,F7F7F7F7
 300 DATA FFFFF7,EEEEEEEE,EEEEEE
 310 DATA FFBBCCFF,CCBBFFEE,7676FFFF
 320 DATA FE7676FE,F7F7FFFF,F7F7F7F7
 330 DATA EEEEEEEE,EEEEEEEE,FFFFFFFF
 340 DATA FEFEFEFF,FFFFFEFE,F7F7F7FF
 350 DATA FFFFF7F7,FEFEFEFF,EEEEEEEE
 360 DATA E6E6E6EE,FEFEFEFE,FFFFFE
 370 DATA F7F7F7F7,FFFFF7,FEFEFEFE
 380 DATA FFFFFE,E6E6E6E6,EEEEE6
 390 DATA 99DDFFFF,DDDD0055,F9F9FFFF
 400 DATA F9F9F9F9,F9F9FFFF,F9F9F9F9
 410 DATA EEEEEEEE,EEEEEEEE,FFFFFFFF
 420 DATA FFFFFFFF,FFFFF9F9,F9F9F9FF
 430 DATA FFFFF9F9,F9F9F9FF,EEEEEEEE
 440 DATA EEEEEEEE,FFFFFFFF,FFFFFF
 450 DATA F9F9F9F9,FFFFF9,F9F9F9F9
 460 DATA FFFFF9,EEEEEEEE,EEEEEE
 470 DATA FEFEFFFF,FEFEFEFE,E6E6EEFF
 480 DATA F7E6D5F7,76FE33FF,FE76BABA
 490 DATA E6E6EEEE,E6E6E6E6,FFFFFEFE
 500 DATA FEFEFEFF,EFEFE7E7,E7E7E7EF
 510 DATA 7F7F7E7E,7E7E7E7F,EEEEE6E6
 520 DATA E6E6E6EE,FEFEFEFE,FFFFFE
 530 DATA F7F7F7F7,FFFFF7,FEFEFEFE
 540 DATA FFFFFE,E6E6E6E6,EEEEE6
 550 DATA 7654BBFF,FEBA5432,F6F6FFFF
 560 DATA F6F6F6F6,F6F6FFFF,F6F6F6F6
 570 DATA E6E6EEEE,E6E6E6E6,FFFFFEFE
 580 DATA FEFEFEFF,FFFFF6F6,F6F6F6FF
 590 DATA FFFFF6F6,F6F6F6FF,EEEEE6E6
 600 DATA E6E6E6EE,FEFEFEFE,FFFFFE
 610 DATA F6F6F6F6,FFFFF6,F6F6F6F6
 620 DATA FFFFF6,E6E6E6E6,EEEEE6
 630 DATA DDEE88FF,FFBBBBDD,EFEFFFFF
 640 DATA FFEFEFEF,7F7FFFFF,FF7F7F7F
 650 DATA EEEEEEEE,EEEEEEEE,FEFEFEFF
 660 DATA FFFFFEFE,E6E6E6FF,FFFFE6E6
 670 DATA 767676FF,FFFF7676,E6E6E6EE
 680 DATA EEEEE6E6,FEFEFEFE,FFFFFE
 690 DATA E6E6E6E6,FFFFE6,76767676
 700 DATA FFFF76,E6E6E6E6,EEEEE6
 710 DATA FEFEFFFF,FEFEFEFE,F7F7FFFF
 720 DATA F1F4F6F7,FEFEFFFF,F8F2F6FE
 730 DATA E6E6EEEE,E6E6E6E6,FFFFFEFE
 740 DATA FEFEFEFF,EEDDE6F3,F1F3E6DD
 750 DATA 77BB76FC,F8FC76BB,EEEEE6E6
 760 DATA E6E6E6EE,FEFEFEFE,FFFFFE
 770 DATA F7F7F6F4,FFFFF7,FEFEF6F2
 780 DATA FFFFFE,E6E6E6E6,EEEEE6
 790 DATA 5454BBFF,FF32DC98,E7E7FFFF
 800 DATA FFE7E7E7,7E7EFFFF,FF7E7E7E
 810 DATA E6E6EEEE,EEE6E6E6,FEFEFEFF
 820 DATA FFFFFEFE,E7E7E7FF,FFFFE7E7
 830 DATA 7E7E7EFF,FFFF7E7E,E6E6E6EE
 840 DATA EEEEE6E6,FEFEFEFE,FFFFFE
 850 DATA E7E7E7E7,FFFFE7,7E7E7E7E
 860 DATA FFFF7E,E6E6E6E6,EEEEE6
 870 DATA DFDF9FFF,FFFF8FDF,FFFFFFFF
 880 DATA 7788FFFF,FFFFFFFF,DD33FFFF
 890 DATA EEEEEEEE,EEEEEEEE,DDDDDDEE
 900 DATA FFEEDDDD,C7E7FBFC,77FCFBE7
 910 DATA 7DFDFBE6,DDE6FBFD,666666EE
 920 DATA EEEE6666,FFFFFFFF,FFFFFF
 930 DATA FFFFFF88,FFFFFF,FFFFFF33
 940 DATA FFFFFF,EEEEEEEE,EEEEEE
 950 DATA DF5FBFFF,FF1F7FBF,FFFFFFFF
 960 DATA BBAABBCC,FFFFFFFF,BBBBBB77
 970 DATA EEEEEEEE,EEEEEEEE,FFFFFFFF
 980 DATA FFFFFFFF,FFFFFFCC,FBFCFFFF
 990 DATA FFFFFF77,FBF7FFFF,EEEEEEEE
1000 DATA EEEEEEEE,FFFFFFFF,FFFFFF
1010 DATA FFFCFBFA,FFFFFF,FFF7FBFB
1020 DATA FFFFFF,EEEEEEEE,EEEEEE
1030 DATA BEDE3FFF,FFFF3FDE,FAFEF1FF
1040 DATA FFFFF1FE,FFFFFFFF,FFFFFFFF
1050 DATA EEEEEEEE,EEEEEEEE,FFFFFFFF
1060 DATA FFFFFFFF,AFBFCFFF,FFFFCFBF
1070 DATA BFBF7FFF,FFFF7FBF,EEEEEEEE
1080 DATA EEEEEEEE,FFFFFFFF,FFFFFF
1090 DATA EEEEFFFF,FFFFEE,AAEE11FF
1100 DATA FF11EE,EEEEEEEE,EEEEEE
1110 DATA 5F9FDFFF,EEEEDF0F,FFFFFFFF
1120 DATA AAEE11FF,FFFFFFFF,FAFBFCFF
1130 DATA EEEEEEEE,EAEAE6EE,FFFFFFEE
1140 DATA FFFFFFFF,FFFF11EE,F1FFFFFF
1150 DATA FFFFFCFB,CCFFFFFF,EEEEE6EA
1160 DATA 66EEEEEE,FFFEFEFE,FFFFFF
1170 DATA F1FEFAFE,FFFFFF,CCBBAABB
1180 DATA FFFFFF,66AAAAAA,EEEEEE
1190 DATA 9FBF8FFF,EE8E6FEF,FFFFFFFF
1200 DATA AAEE11FF,FFFFFFFF,FAFBFCFF
1210 DATA EEEEEEEE,EAEAE6EE,FFFFFFEE
1220 DATA FFFFFFFF,DFEF11EE,F1EFDFDF
1230 DATA DF3FFCFB,CC3FDF5F,EEEEE6EA
1240 DATA 66EEEEEE,FFFEFEFE,FFFFFF
1250 DATA F1FEFAFE,FFFFFF,CCBBAABB
1260 DATA FFFFFF,66AAAAAA,EEEEEE
1270 DATA 7E5EBFFF,FFBF5F1E,FAFEF1FF
1280 DATA FFFFF1FE,FAFBFCFF,FFFFFCFB
1290 DATA EAEAE6EE,EEEEE6EA,FFFFFFFF
1300 DATA FFEFEFEF,1FFFFFFF,1FEFAFEF
1310 DATA CFFFFFFF,CFBFAFBF,6EEEEEEE
1320 DATA 6EAEAEAE,EFEFFFFF,FFFFEF
1330 DATA AFEF1FFF,FF1FEF,AFBFCFFF
1340 DATA FFCFBF,AEAE6EEE,EE6EAE
1350 DATA BEDF1FFF,FF7F7FBE,FDF3FFFF
1360 DATA FDFDF2FD,FFFFFFFF,FBFBF7FF
1370 DATA EEEEEEEE,EEEEEEEE,FFFFFFFF
1380 DATA EFEFFFFF,FFFFFFFE,DFDF3FFF
1390 DATA FEFDFDF6,BFBFCFFF,E6EAEAE6
1400 DATA 6E6EEEEE,EFFFFFFF,FFFFEF
1410 DATA DF3FFF3F,FF3FDF,BFCFFFCF
1420 DATA FFCFBF,6EEEEEEE,EEEE6E
1430 DATA 9F6F9FFF,FFFF9F6F,666699FF
1440 DATA 6699FF99,BBBBCCFF,BBCCFFCC
1450 DATA 6666EEEE,66EEEEEE,FFFFFFFF
1460 DATA FFFFFFFF,99FF9966,FF996666
1470 DATA CCFFCCBB,FFCCBBBB,EEEEEE66
1480 DATA EEEE6666,FFFFFFFF,FFFFFF
1490 DATA 99666699,FFFFFF,CCBBBBCC
1500 DATA FFFFFF,EE6666EE,EEEEEE
1510 DATA BBBBCCFF,9F5FBFCC,5555EEFF
1520 DATA FFFFFFEE,AAAA77FF,FFFFFF77
1530 DATA CCCC22EE,EEEEEE22,BFCF3FDF
1540 DATA FFFFCFBF,5FEFFFFF,FFFFEF5F
1550 DATA AF7FFFFF,FFFF7FAF,CE2EEEEE
1560 DATA EEEE2ECE,FBFCFFFF,FFFCFB
1570 DATA F5FEFFFF,FFFEF5,FAF7FFFF
1580 DATA FFF7FA,ECE2EEEE,EEE2EC
1590 DATA DDCCFFFF,DDDDDDDD,FF00FFFF
1600 DATA 77773300,FF00FFFF,DDDD9911
1610 DATA 6666EEEE,66666666,DDDDDDDD
1620 DATA DDDDDDDD,77777777,77777777
1630 DATA DDDDDDDD,DDDDDDDD,66666666
1640 DATA 66666666,CCDDDDDD,FFFFFF
1650 DATA FF0033,FFFFFF,FF1199
1660 DATA FFFFFF,66666666,EEEEEE
1670 DATA FFFFFFFF,FFFFFFFF,FFFFFFFF
1680 DATA EFEFCFFF,FFFFFFFF,FF7FFFFF
1690 DATA EEEEEEEE,EEEEEEEE,FFFFEFFF
1700 DATA FFFFFFFF,8F6F0F6F,EFEFEFEF
1710 DATA 5FEF1FFF,FFFFFFBF,EEEEEEEE
1720 DATA EEEEEEEE,FFFFFFFF,FFFFFF
```

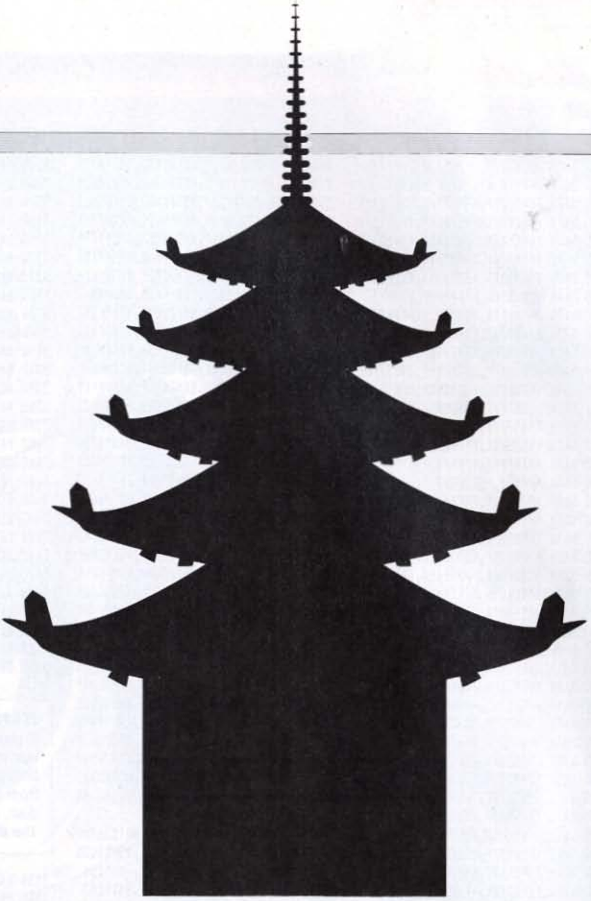
```
1730 DATA FFFFEFEF,FFFFFF,FFFFFFFF
1740 DATA FFFFFF,EEEEEEEE,EEEEEE
1750 DATA FFFFFFFF,FFFFFFFF,FFFFFFFF
1760 DATA FBFDF8FC,FDFFFFFF,FBF4F3FD
1770 DATA EEEEEEEE,EEEEE6EE,FDFEFFFE
1780 DATA FFFFFFFF,FAFAF4FB,F5FDFCF9
1790 DATA F9FAF0FD,F2F9F3FD,EEE2EEEE
1800 DATA EEEEEEEE,FFFFFFFF,FFFFFF
1810 DATA FFFFFFFA,FFFFFF,FFFFFFFE
1820 DATA FFFFFF,EEEEEEEE,EEEEEE
1830 DATA AF9FBFFF,FFFFFFBF,7F7F7FFF
1840 DATA BBEEFF7F,FFFFFFFF,333377FF
1850 DATA EEEEEEEE,EEEEEEEE,EEFFFFFF
1860 DATA DDEEFFFF,BBBBBB11,FFBB3399
1870 DATA 11557777,88447777,EEEEEEEE
1880 DATA EEEEEEEE,FFFFFFFF,FFFFFF
1890 DATA FFFFFFFF,FFFFFF,FFFFFFFF
1900 DATA FFFFFF,EEEEEEEE,EEEEEE
1910 DATA 5F7F7FFF,FFFFAFAF,7F7F7FFF
1920 DATA FFCCFFFF,FFFFFFFF,FF33CCFF
1930 DATA EEEEEEEE,EEEEEEEE,FFFFFFFF
1940 DATA FFFFFFFF,6600EEFF,FFFF88BB
1950 DATA AA00BBBB,FF9922FF,66EEEEEE
1960 DATA EEEEEE66,FFFFFFFF,FFFFFF
1970 DATA FFFFFFFF,FFFFFF,FFFFFFFF
1980 DATA FFFFFF,EEEEEEEE,EEEEEE
1990 DATA 9FBF8FFF,FFFF8FBF,FFFFFFFF
2000 DATA 88EEEEFF,FFFFFFFF,33FF77FF
2010 DATA EEEEEEEE,EEEEEEEE,FFFFEEFF
2020 DATA FFFFFFFF,446600EE,AACC88AA
2030 DATA 55DD11FF,BB773399,EEEEEEEE
2040 DATA EEEEEEEE,FFFFDDEE,FFFFFF
2050 DATA CCAAEE66,FFFFEE,FFFFEEDD
2060 DATA FFFFFF,EE2266EE,EEEEEE
2070 DATA DFBFCFFF,FFDFAFEF,FF7FFFFF
2080 DATA EEFFFFFF,FFFFFFFF,FFFFFFFF
2090 DATA EEEEEEEE,EEEEEEEE,FFFFFFFF
2100 DATA FFEEFFFF,EEEEEE,4444BB55
2110 DATA 33FFFF77,66EE6688,EEEEEEEE
2120 DATA EEEEEEEE,FFFFFFFF,FFFFFF
2130 DATA FFFF7766,FFFFFF,FFFFDDEE
2140 DATA FFFFFF,EEEEEEEE,EEEEEE
2150 DATA 9FBF8FFF,FFFFBFBF,F9FBFFFF
2160 DATA F8FAF6F6,FFFFFFFF,DFFFFFFF
2170 DATA EEEEEEEE,EEEEEEEE,EFFFFFFF
2180 DATA FCFDFEFE,FDFDFCFD,F4F5F5FD
2190 DATA F5F1FFF3,F7F7F7F1,EEEEEEEE
2200 DATA EEEEEEEE,FFFFFFFF,FFFFFF
2210 DATA FCFBF7F6,FFFFFF,F7F7F7F7
2220 DATA FFFFF7,EEEEEEEE,EEEEEE
2230 DATA 88AADDFF,FFFFFEAA,FFFFFFFF
2240 DATA F3F2FEFF,FFFFFFFF,74F3F377
2250 DATA EEEEEEEE,EEEEEEEE,FFFFFFFF
2260 DATA FFFFFFFF,E0E2EEFC,FFFFEEE2
2270 DATA FDFFFF70,7773F9F8,EEEEEEEE
2280 DATA E2EEEEEE,FFFBFCFF,FFFFFF
2290 DATA FFF3E0F3,FFFFFF,FFFF00BB
2300 DATA FFFFFF,EE6666E6,EEEEEE
2310 DATA FEFCFFFF,FCFEFEFE,FFFFFFFF
2320 DATA F7FFCCFF,FFFFFFFF,FFFF7788
2330 DATA EEEEEEEE,EEEE6666,FFFFFFFF
2340 DATA FFFFFFFF,EF8FFFFF,AF8FFFCF
2350 DATA FF3F7FFF,BF3FFF3F,EEEEEEEE
2360 DATA EEEEEEEE,FFCFEFFF,FFFFFF
2370 DATA 6F0FAF8F,FFFF9F,2F0FBF3F
2380 DATA FFDFEF,6E6EEEEE,EEEEEE
2390 DATA FDFEFFFF,FCFEFFFF,FBF7FFFF
2400 DATA F3EEF7FB,CCFFFFFF,FF00FF33
2410 DATA EEEEEEEE,66EEEEEE,FFFFFFFF
2420 DATA FFFFFFFF,EF8FFFFF,AF8FFFCF
2430 DATA FF3F7FFF,BF3FFF3F,EEEEEEEE
2440 DATA EEEEEEEE,FDFEFFFF,FDFFFFFF
2450 DATA FBE6FFFF,FBEAF7FB,FF00FFFF
2460 DATA FF00FF11,EEEEEEEE,66EEEEEE
2470 DATA FFFFFFFE,FFFFFFFF,EF8FFFF7
2480 DATA AF8FFFCF,FF3F7FFF,BF3FFF3F
2490 DATA EEEEEEEE,EEEEEEEE,FEFFFFFF
2500 DATA FFF8FDFD,F7F7FFFF,F7E2E6E6
2510 DATA 88FFFFFF,3388AA22,22EEEEEE
2520 DATA EE22AAAA,FFFFFFFF,FFFFFFFF
2530 DATA EF8FFFF7,AF8FFFCF,FF3F7FFF
2540 DATA BF3FFF3F,EEEEEEEE,EEEEEEEE
2550 DATA FDFCFFFF,FCFBFFFC,FFF7FFFF
2560 DATA FFD5E6FF,EEFFFFFF,446600
2570 DATA 66EEEEEE,66EEEEEE,FFFFFFFF
2580 DATA FFFFFFFF,EF8FFFFF,AF8FFFCF
2590 DATA FF3F7FFF,BF3FFF3F,EEEEEEEE
2600 DATA EEEEEEEE,FBFCFFFF,FCFBF8FB
2610 DATA F7FFFFFF,EEF7FFEE,BB99FFFF
2620 DATA FF66BB00,66EEEEEE,6666EE22
2630 DATA FFFFFFFF,FFFFFFFF,EF8FFFFF
2640 DATA AF8FFFCF,FF3F7FFF,BF3FFF3F
2650 DATA EEEEEEEE,EEEEEEEE,FFFCFFFF
2660 DATA FEFEFFFF,FBF3FFFF,EEFFF7F7
2670 DATA 33FFFFFF,CC3399AA,66EEEEEE
2680 DATA 6666EE22,FFFFFFFD,FFFFFFFF
2690 DATA EF8FFFDD,AF8FFFCF,FF3F7FFF
2700 DATA BF3FFF3F,EEEEEEEE,EEEEEEEE
2710 DATA FBFCFFFF,FBFBFCFB,F7FFFFFF
2720 DATA E6F7FFF7,BBBBFFFF,7766CCDD
2730 DATA EEEEEEEE,2266EEEE,FFFFFFFC
2740 DATA FFFFFFFF,EF8FFFDD,AF8FFFCF
2750 DATA FF3F7FFF,BF3FFF3F,EEEEEEEE
2760 DATA EEEEEEEE,FBFCFFFF,FBFFFCFB
2770 DATA F7FFFFFF,E6F7F7E6,55FFFFFF
2780 DATA EE555500,EEEEEEEE,6666EEEE
2790 DATA FFFFFFFC,FFFFFFFF,EF8FFFFF
2800 DATA AF8FFFCF,FF3F7FFF,BF3FFF3F
2810 DATA EEEEEEEE,EEEEEEEE,45374537
2820 DATA 4536452C,45364536,BC020D45
2830 DATA 4520DC1E,45454545,2C364536
2840 DATA 45464546,0,0
2850 DATA 48D00A9,1C058D1C,8D1C068D
2860 DATA 10A21C07,6E1C014E,13901C00
2870 DATA 181C06AD,8D1C026D,7AD1C06
2880 DATA 1C036D1C,6E1C078D,66E1C07
2890 DATA 1C056E1C,CA1C046E,AC60D6D0
2900 DATA 1C00428,9C01E30,30AD1A10
2910 DATA A0A0A04,A804286D,D90424AD
2920 DATA 8301B70,CD1B98B9,3100424
2930 DATA AD6000A9,4C90430,70AD04D0
2940 DATA 24AD601B,F001C904,300EC904
2950 DATA 1E691806,2003D0A8,E0B91C8E
2960 DATA 30AE601A,AE0DD004,C0BD0428
2970 DATA 246D181B,6088A804,A0A0A8A
2980 DATA 28AD8985,72850A04,E5383BA9
2990 DATA 8572E589,A72A589,246D180A
3000 DATA 65146904,FBD0CA89,30AD60A8
3010 DATA A90B1004,42C8D00,8B8501A9
3020 DATA A90CD0,43208B85,42C8D1C
3030 DATA 8A93AF0,1A97C85,24AD7D85
3040 DATA D002C904,428AD07,1EF004C9
3050 DATA 200424CE,4F01C43,7C8500A9
3060 DATA CE0424EE,43200428,A904F01C
3070 DATA EE7D8500,1D200428,938201D
3080 DATA 8500A960,858A8586,1C018D8C
3090 DATA AD1C038D,AA8042C,86260A0A
3100 DATA A86260A,89858626,260A86A6
3110 DATA 101DC086,8589650D,86658A85
3120 DATA 86850E69,69180FD0,A58585A0
3130 DATA 85116986,8501A986,8578A98C
3140 DATA 8502A987,8504A988,430CD84
3150 DATA 808509D0,81854FA9,AD1E244C
3160 DATA 1C90424,EC904F0,30AD2330
3170 DATA A91ED004,1C008D20,8D0424AD
3180 DATA 8201C02,1C04AD1C,8085A469
3190 DATA 691C05AD,D0818550,430AD7B
3200 DATA A1001C9,878500A9,84858885
3210 DATA 850A03F0,424AD84,EE1C028D
3220 DATA 20A91C02,201C008D,4AD1C08
3230 DATA AD80851C,81851C05,8D80A9
3240 DATA 8D07A91C,28AD1C01,1C028D04
3250 DATA AD1C0820,80651C04,5AD8085
3260 DATA 6981651C,A5818530,84E53880
3270 DATA 2B08085,80A581C6,8587E538
3280 DATA E581A580,AD818588,2C90430
3290 DATA 80A50A30,808508E9,81C602B0
3300 DATA 300430AD,85012904,48AD608A
3310 DATA 4248D04,8D044CAD,68AD0428
3320 DATA 4308D04,44D004C9,A904288D
3330 DATA 1B708D00,850430CE,85718570
3340 DATA 857C8573,8521A97D,A97B857A
3350 DATA 4248D07,EE1CC620,C6200424
3360 DATA 428EE1C,C90428AD,A9E8D006
3370 DATA 1B948D10,A91B958D,1BBC8D00
3380 DATA 601BBD8D,A91C8E20,1AE09900
3390 DATA 308D8085,428CE04,EE1F5B20
3400 DATA 5B200428,428EE1F,CE1F5B20
3410 DATA 30EE0428,F080A504,430CEE4
3420 DATA AD0430CE,A0A0468,4286D0A
3430 DATA 1B70B9A8,D00424CD,169180B
3440 DATA A91B7099,4108D01,CD1B98B9
3450 DATA BD00424,9901E938,2A91B98
3460 DATA B904108D,70D91B98,A90F101B
3470 DATA 1B709910,989900A9,8D03A91B
3480 DATA 2A90410,A904408D,A9718501
3490 DATA CE708500,7B200428,428EE1F
3500 DATA 718500A9,EE1F7B20,40AD0428
3510 DATA AE708504,6300430,8D026918
3520 DATA 7B200440,428CE1F,AD0430EE
```

SUBSCRIBE NOW!

If you prefer to save the wear and tear on your fingers you'll find this listing – together with all the others from this issue – on this month's disc, sent free if you subscribe to *The Micro User.*

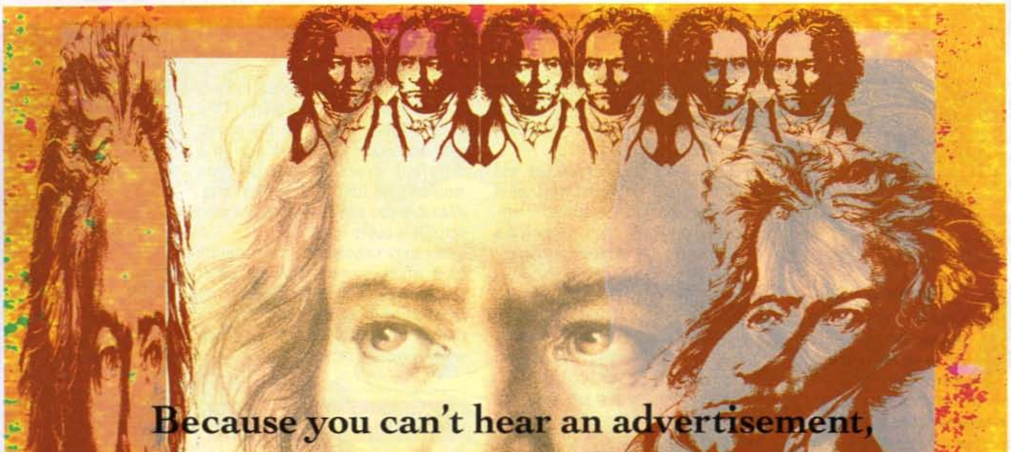
```
3530 DATA 5C90430,24ADC5D0,F001C904
3540 DATA 300EC904,428AD31,2AD004C9
3550 DATA A90428EE,4308DFF,CE1EB74C
3560 DATA 71200424,424EE1F,EE1F7120
3570 DATA 71200424,424CE1F,1C432060
3580 DATA 1A904D0,A9608085,A9738501
3590 DATA 857A8521,424CE7B,EE1CC620
3600 DATA A90424,C6207385,424EE1C
3610 DATA 7A8508A9,30AE7B85,3002E004
3620 DATA 8510A904,3001E07B,1003E00E
3630 DATA 8510A906,A904D07A,207A8518
3640 DATA 24CE1CC6,A9006004,1FC28D01
3650 DATA F0043CAD,454ADAD,AD04488D
3660 DATA 4C8D0458,45CAD04,A904688D
3670 DATA 9D24A200,C89D0E27,F7D0CA1B
3680 DATA 4588EE8,F01B98BD,4548D72
3690 DATA AD208420,248D0454,F001C904
3700 DATA 300EC904,458AD07,3DF005C9
3710 DATA 8D045CAD,4C90430,54AD0ED0
3720 DATA D007C904,458AD2C,25D004C9
3730 DATA 8D0458AD,A0A0428,546D0A0A
3740 DATA 43204804,BE68A81C,5D00E27
3750 DATA F00E2799,1BC89908,C28D00A9
3760 DATA 458AC1F,AD0454CE,70D90454
3770 DATA 200C301B,5CAD2084,3005C904
3780 DATA AEE61096,8E00458,EC4C0310
3790 DATA 448AD1F,AD04548D,588D044C
3800 DATA 468AD04,60045C8D,5C8E05A2
3810 DATA A8ACA04,586D0A0A,54ADA804
3820 DATA 1B70D904,98D909F0,CA04F01B
3830 DATA 8E60E810,4260045C,4420DC20
3840 DATA 46463346,2C424643,46334343
3850 DATA 46354644,4545452C,45364545
3860 DATA 4C040D41,3620DC1E,45454536
3870 DATA 2C454545,45464646,45464546
3880 DATA 4646462C,D464646,DC1E5604
3890 DATA 46314620,46414645,46462C45
3900 DATA 46464646,4243432C,42414142
3910 DATA 78467885,74A519B0,75A58D85
3920 DATA FA98E85,A90C348D,C358D0C
3930 DATA 368D03A9,A513D00C,A58D8576
3940 DATA A98E8577,C348D00,8D0C358D
3950 DATA 1A90C36,5DD07985,798500A9
3960 DATA 55F07DA5,71058BA5,80A54FD0
3970 DATA 81A57E85,87A57F85,80A510D0
3980 DATA 8580E938,E981A580,4C818502
3990 DATA 80A5096D,8508E938,C602B080
4000 DATA ABF2081,8F8500A9,73A507A0
4010 DATA 17A002F0,C80AF020,9F07AC4
4020 DATA 7691898,D027C0A8,857EA5EF
4030 DATA 857FA580,8500A981,ABF207D
4040 DATA 728570A5,71A503A2,1E004F0
4050 DATA A040D0,2F073A5,E82010A0
4060 DATA A98200A,C40A8420,C026F07A
4070 DATA A5EFD020,D079058A,D08BA51C
4080 DATA D003E00B,2980B107,C8809177
4090 DATA 200ACD20,8420DA98,D028C00A
4100 DATA F072A5F3,A5186001,85806980
4110 DATA 6981A580,20818502,1E00ABF
4120 DATA 8BA525F0,2E01DD0,8CA50ED0
4130 DATA C0A90AF0,18A98585,BD08685
4140 DATA 6520A918,90858585,CA86E602
4150 DATA A509A24C,A55CD079,A907F08B
4160 DATA 4C728502,73A509AA,10A004F0
4170 DATA A021D0,BF08AA5,CC2982B1
4180 DATA 82911109,A90A5B4C,C8809170
4190 DATA 882980B1,18988091,C4A80769
4200 DATA A924B07B,C88091F0,809100A9
4210 DATA EAD019C0,6F08AA5,91C0A988
4220 DATA 20A06080,332980B1,C0C88091
4230 DATA 60F5D022,FBF072A5,C5072998
4240 DATA 20F4D072,29980A98,60F8D007
4250 DATA 72998C8,80A510D0,8587E538
4260 DATA E581A580,4C818588,84C50ABF
4270 DATA 80A51AD0,85876518,6581A580
4280 DATA 38818588,8E980A5,81A58285
4290 DATA 838500E9,2980B160,8BA54833
4300 DATA 96806D0,60809180,B1898568
4310 DATA 5CC2985,AD94C89,6BD079A5
4320 DATA 8F8585B1,13D08AA5,80918FA5
4330 DATA 5AD08BA5,56B07CC4,EE2982B1
4340 DATA A5608291,294A4A8F,B1898533
4350 DATA 5CC2982,8BA54889,7CC408D0
4360 DATA 296804B0,916848BB,B07BC482
4370 DATA A8FA52D,85CC290A,D07DA589
4380 DATA D018C019,F003E004,9018C00A
4390 DATA 989A50D,B10DD020,4C112980
4400 DATA 80B10B52,89053329,86608091
4410 DATA C000A289,A53BB008,2006D08A
4420 DATA 844C0C09,F078A50B,8182B10E
4430 DATA DCC298D,82910C36,A10B7F4C
4440 DATA 2082918D,A20C00,3C989A5
4450 DATA 2C006D0,599072B0,6CD001C9
4460 DATA 689006C0,18C04FB0,8AA51D90
4470 DATA 192041D0,C989A50C,C006D003
4480 DATA 9051B01A,D001C93C,901EC04B
4490 DATA A532B047,D003C989,900AC00F
4500 DATA F010C02E,F011C02A,C064C26
4510 DATA 32D001C9,1BB016C0,17F00EC0
4520 DATA 13F00FC0,200C064C,4C0C09
4530 DATA D08AA50C,F078A506,A508D00F
4540 DATA B132F078,AD8D8180,80910C34
4550 DATA 2D08DE6,89A68EE6,F078A560
4560 DATA 8180B122,D33298D,264C0C35
4570 DATA F078A50C,8180B112,DCC298D
4580 DATA 80910C36,C2F2060,A10C004C
4590 DATA 6080918D,708500A9,30A97285
4600 DATA EA97185,3A27385,A9462F20
4610 DATA A2738511,462F200A,73851CA9
4620 DATA 2F2005A2,8509A946,2004A273
4630 DATA A060462F,9170B100,F9D08872
4640 DATA 73E671E6,60F2D0CA
```

➤



Get it right ✓

```
  10 =    0 0
  20 =    0 0
  30 =    0 0
  40 = 278C C
  50 = 5C43 6
  60 =  E7C 8
  70 = B9FD D
  80 = 17C5 7
  90 = 7296 0
 100 = 17C5 4
 110 = 3C8C 9
 120 = BC1B E
 130 = 6BC2 2
 140 = FD2E A
 150 = C5C3 6
 160 = D979 A
 170 = A5FA D
 180 = C6A0 0
 190 = 830A 9
 200 = 6115 B
 210 = 1A26 5
 220 = 6FBD 7
 230 = 809D B
 240 = E070 2
 250 = 4105 3
 260 =  677 B
 270 = 8515 E
 280 = 6115 1
 290 = 3CA0 7
 300 = 29D6 3
 310 = 4748 F
 320 = A1E6 C
 330 = 4105 5
 340 =  262 4
 350 = 2855 8
 360 = 8B07 A
 370 = 5647 A
 380 = 76DD A
 390 = FD64 F
 400 = EAE9 3
 410 = 4105 0
 420 = 418A C
 430 = C38F D
 440 = 6115 D
 450 = E924 A
 460 = CC8A A
 470 = 30A6 4
 480 = C256 1
 490 = 88D7 2
 500 = 2C75 C
 510 = 979D 5
 520 = 8B07 4
 530 = 5647 B
 540 = 76DD E
 550 = F34B B
 560 = A063 9
 570 = 88D7 5
 580 = C803 E
 590 = 9160 9
 600 = 8B07 9
 610 = 2719 B
 620 = 1DFC 4
 630 = 5595 C
 640 = 7E84 C
 650 = 2E05 D
 660 = A9AB F
 670 = 331E 6
 680 = 2842 7
 690 = 1663 3
 700 = 1172 F
 710 = E68F 6
 720 = 7562 E
 730 = 88D7 D
 740 = 4049 3
 750 = D0D5 4
 760 = 8B07 F
 770 = 3656 1
 780 = 76DD 9
 790 = 580F B
 800 = 6AB8 4
 810 = 8F9F 1
 820 = 5E8A C
 830 = 999B 3
 840 = 2842 0
 850 = 673D 5
 860 = 7A53 7
 870 = F377 F
 880 = 88C9 B
 890 = 87BB 5
 900 = B689 8
 910 =  E09 D
 920 = 4B27 5
 930 = 6EC7 B
 940 = 6333 4
 950 = 4E30 1
 960 = 536F 3
 970 = 4105 6
 980 = 74C8 1
 990 = BBCD 0
1000 = 6115 9
1010 = A659 C
1020 = 6333 5
1030 = 11BE 7
1040 = 3EA7 0
1050 = 4105 F
1060 =  474 A
1070 = 1DD5 A
1080 = 6115 B
1090 = 52E6 1
1100 = 716A 5
1110 = 4D57 4
1120 = 6FFC 5
1130 = D86D 8
1140 = AEC8 A
1150 =  A4C 2
1160 = ABF2 C
1170 = 3C25 B
1180 = E32C 9
1190 =  601 8
1200 = 6FFC B
1210 = D86D 5
1220 = 29C3 8
1230 = FD4F E
1240 = ABF2 4
1250 = 3C25 4
1260 = E32C C
1270 = A709 4
1280 =  E48 2
1290 = 19D8 D
1300 = F9BC 7
1310 = 5C17 6
1320 = 1171 2
1330 = 10D4 F
1340 = 38F1 9
1350 = 321D F
1360 = 6805 1
1370 = 4105 7
1380 = 2BB9 8
1390 = BBEF D
1400 = EB27 7
1410 = 6DD9 D
1420 = 3753 6
1430 = 36D3 6
1440 =   18 1
1450 = D038 2
1460 = A5FF 4
1470 = 86C4 F
1480 = 4B27 0
1490 =  52E 9
1500 = E193 2
1510 =  F23 F
1520 = 1526 B
1530 = EEDA 1
1540 = 8FA0 5
1550 = D945 4
1560 = B100 A
1570 = 9010 C
1580 = E4D3 E
1590 = 2478 8
1600 = E299 D
1610 = 50A0 7
1620 = C864 2
1630 = B5DF C
1640 = B759 F
1650 = 639C D
1660 = F8E3 B
1670 = DD27 E
1680 = AA05 2
1690 = DAD9 7
1700 =  604 D
1710 = 91A1 6
1720 = 6115 6
1730 = 5B91 E
1740 = 6333 7
1750 = DD27 E
1760 = C7D0 E
1770 = 7E78 B
1780 = 9639 E
1790 = A373 2
1800 = 6115 3
1810 = 47FB 6
1820 = 6333 4
1830 = 61EF D
1840 = 6FE2 2
1850 = 51F2 0
1860 = C1A4 7
1870 = BBDB 2
1880 = 6115 8
1890 =  536 C
1900 = 6333 3
1910 = B467 C
1920 = B8D7 A
1930 = 4105 A
1940 = 5F56 E
1950 = 9125 5
1960 = F6F9 6
1970 =  536 3
1980 = 6333 4
1990 = F7FC 7
2000 = 20E9 4
2010 = 8389 C
2020 = 5A2B 2
2030 = AC66 D
2040 = FA1D C
2050 = D062 8
2060 = E9EA 1
2070 = 7C46 4
2080 = F779 3
2090 = 4105 5
2100 = F9D2 F
2110 = 1F76 5
2120 = 6115 C
2130 = 3F11 C
2140 = 6333 7
2150 = 90E2 5
2160 = B325 A
2170 = 8970 5
2180 = 9803 F
2190 = 7455 A
2200 = 6115 B
2210 = 9C59 9
2220 = 29D6 A
2230 = 2E93 2
2240 = EDE0 3
2250 = 4105 A
2260 =  A0D 7
2270 = 5A77 9
2280 = 14E3 2
2290 = 8E54 2
2300 = 99EA F
2310 = E3F8 2
2320 = CCED E
2330 = C3A5 8
2340 = 196A F
2350 = A26D 9
2360 = 5921 C
2370 = 5523 E
2380 = BC3C 2
2390 = 2A16 E
2400 = 94B3 C
2410 = 2B5F F
2420 = 196A 6
2430 = A26D B
2440 = 58CE B
2450 = 32EE 7
2460 = 45E0 8
2470 = CCDB 3
2480 = 965D 3
2490 = 9987 E
2500 = 4913 3
2510 = A7DA 0
2520 = 450D F
2530 = 7CC7 2
2540 = B60A 9
2550 = 17BD E
2560 = 6F9E 3
2570 = 66FA 7
2580 = 196A B
2590 = A26D 9
2600 = 80DD C
2610 = F63C A
2620 = 1F6B 3
2630 = D06D C
2640 = 965D 7
2650 = 6252 9
2660 = 5B0E 6
2670 = 3491 A
2680 = F307 A
2690 = F432 E
2700 = B60A 5
2710 = D833 C
2720 = E621 3
2730 = 5F36 0
2740 = 6753 1
2750 = A26D 3
2760 = 9943 1
2770 =  C1D 9
2780 = B4D1 B
2790 = 466D E
2800 = 965D 8
2810 = 2459 8
2820 = B832 F
2830 = 2BA9 3
2840 = 4405 1
2850 = 1CED 7
2860 = 6298 4
2870 = EE37 D
2880 = 3F13 D
2890 = DC65 4
2900 = EA0B 4
2910 = FD4C 7
2920 = 2EAF 7
2930 = 8131 8
2940 = BC3B 7
2950 = D69F D
2960 = 7ECF 8
2970 = 6829 5
2980 = 7694 B
2990 = 748D A
3000 = 47AD A
3010 = 2096 0
3020 = 79CA F
3030 = D925 3
3040 = 5BA8 8
3050 = 74EE 2
3060 = 8C02 0
3070 = 7109 A
3080 = C453 D
3090 = E0EB 0
3100 = 86D6 4
3110 = F664 8
3120 = FC9A 2
3130 = 3870 7
3140 = 4824 6
3150 = 52D4 C
3160 = 8B3F 8
3170 = 63C4 3
3180 = D7FE 9
3190 = 7819 9
3200 = 6F5A 0
3210 = E4BF 2
3220 = 8836 D
3230 = 6DC6 B
3240 = FDA4 9
3250 =  8D6 0
3260 = 9AA9 F
3270 = F44C C
3280 = 62CB A
3290 = 31E1 0
3300 = C553 B
3310 = A8A6 5
3320 = CDCF A
3330 = 2DB2 7
3340 = 2BA9 4
3350 = D601 9
3360 = 4CDB 2
3370 = 6304 6
3380 = BA71 8
3390 = C185 A
3400 = 86DF 1
3410 = 8B45 A
3420 = 6A78 8
3430 = CE68 F
3440 = 9AF4 E
3450 = 4E3E C
3460 = 15C6 C
3470 = 8A5E 3
3480 = CE3B E
3490 = E0F8 C
3500 = 8BAE 7
3510 = 3787 2
3520 = 92DC 4
3530 = B4B9 4
3540 = 4AF7 5
3550 = 2C86 A
3560 = 7ED7 4
3570 = D599 1
3580 = 327E 4
3590 = EEC1 B
3600 = 8631 E
3610 = D84F 4
3620 = 9C6D E
3630 = D541 7
3640 = A67D 7
3650 = BF96 7
3660 = 182C F
3670 = 4122 5
3680 = FF78 3
3690 = 92E7 5
3700 = BB21 1
3710 = 237F C
3720 = FCF5 5
3730 = E921 0
3740 = 7D5E E
3750 = 3A4F F
3760 = B9EF 9
3770 = F510 0
3780 = 3DC8 D
3790 = DA06 D
3800 = BABC 1
3810 = 92B8 5
3820 = 29E7 A
3830 = 7A58 2
3840 = FA3F 6
3850 = E6CE F
3860 = 68B9 9
3870 = 96C4 B
3880 = 7B35 F
3890 = 8739 D
3900 = 12F5 4
3910 = 6388 C
3920 = 697E F
3930 = D667 8
3940 = E341 C
3950 = 8766 B
3960 = A119 E
3970 = 29D9 4
3980 = C696 B
3990 = 629E 0
4000 = 826E 7
4010 = 4DAA E
4020 = 2E52 B
4030 = E94C 9
4040 =  516 1
4050 = F8A7 4
4060 = 681B E
4070 = 98B0 A
4080 = B35C 0
4090 = 3CAF 8
4100 = E1FF 0
4110 = B62D 3
4120 = 23E1 6
4130 = 5291 6
4140 = 4358 9
4150 = 4034 A
4160 = 76B6 1
4170 = 84C0 5
4180 = D6C2 0
4190 = 62A7 0
4200 = 96AC A
4210 = F90D 0
4220 = 16A4 A
4230 = 18BA F
4240 =  DCC 8
4250 = 4B8B C
4260 = 3026 2
4270 = FD80 6
4280 = B0BF 9
4290 = BCF0 F
4300 = B271 2
4310 = 7BD8 C
4320 = FE69 3
4330 = 85CA 7
4340 = BBAD B
4350 = 205E E
4360 = 7E14 1
4370 = C76F 8
4380 = 19D6 E
4390 = D298 6
4400 = B343 0
4410 = B013 7
4420 = 6A42 E
4430 = D138 A
4440 =  B4D 4
4450 = 4EF7 B
4460 = 5604 1
4470 = DEC6 2
4480 = C558 5
4490 = 3DFC D
4500 = ADAE 7
4510 =  37A 2
4520 = B065 9
4530 = E3A0 D
4540 = 4BE5 F
4550 = 9A7D F
4560 = CC5A 0
4570 = C309 3
4580 = FD30 4
4590 = 3C6A 8
4600 = CB22 B
4610 = 1192 8
4620 = CB4A B
4630 = E131 A
4640 = 270E C
```


Because you can't hear an advertisement,
we thought we would show you what
Vox Box and Rhapsody 2 can do with your music.

Vox Box and Rhapsody 2 really can enhance your music making. Rhapsody 2 is an improvement on the already successful Rhapsody music notation package. So, now you can do more than ever before. You can drag notes on to the score, transcribe triplets, capture notes in step time and effect MIDI program changes at the beginning or in the middle of a score. Just a few of the new and improved features that you'll discover.

Add to all that the Vox Box symphony of programs, a suite of four programs designed to compliment Rhapsody. There's Perform, which enables the user to play Rhapsody and MIDI files without the need to have Rhapsody present. Then there's Vox Beat which is primarily designed to provide facilities for a drum kit, providing a realistic accompaniment to a score. Vox Sample allows the user to convert sound samples from packages like Armadeus into useable Archimedes voices while Vox Synth will allow you to create Archimedes voices using digital synthesis.

What is more, Vox Synth allows waveforms to be drawn by hand. This means you can transform an existing piece of music into something completely different. Take a Beethoven Symphony, as the illustration suggests, you really can bend it, shape it, any way you want it.

All of this is simply the tip of the iceberg. Hopefully enough to whet your appetite.

So, please write to the address below for your Vox Box and Rhapsody 2 fact pack. It's certain to be music to your ears.

Rhapsody 2 – £61.95 inc. Vat
To upgrade from Rhapsody to Rhapsody 2 send us your original disc plus £15.50
Vox Box – £61.95 inc. Vat

10 Years of Excellence

CLARES

98 Middlewich Road, Rudheath, Northwich, CHESHIRE CW9 7DA. Telephone: 0606 48511 Fax No: 0606 48512

Star g

Product: Orrery
Price: £95 plus VAT, Site licence £150 plus VAT
Supplier: Spacetech, 21 West Wools, Portland, Dorset.
Tel: 0305 822753.
Requirements: BBC A3000 or Archimedes range

AN ORRERY is one of those marvellous antique brass contraptions with gears and cogs that model the motions of the planets. Orrery from Spacetech does all that and more on your own computer.

With it you can display the relative positions of the planets against the background stars, look at the orbits and perform a number of exercises and experiments. All this is done from within a multi-tasking environment.

Imagine being able to watch the animated display of the lobster quadrille continually performed by the planets, and witness conjunctions, oppositions and eclipses without the danger of a cloudy night. Well, all this is on offer from Orrery.

This is a complex program with many aspects, and what you get out of it to some extent will be determined by what you put in.

It can illustrate most aspects of naked eye astronomy with the added advantage of being able to speed up time and whisk you round the world all at a touch on a mouse.

For example I particularly liked the observer window which pops up and shows a cross hair on a scrollable map of the world.

You can drag the cross hair with the mouse and the latitude and longitude move to match. So you can be watching the sunrise over Scary in one window and nip across the country and watch it again over Blackpool.

The main observation window allows you to select a number of viewpoints, both geocentric (somewhere on earth) and heliocentric (somewhere in space).

You can choose whether to have each planet displayed and a line indicating their orbits. These lines can be selected to fade as the planet passes, giving an impression of the general direction of movement without the feeling it is moving round a solid line.

You can choose a planet to lock on to for the heliocentric display, it then stays still and the other planets move around it.

The planets can be indicated by letters or icons which are actually scanned images of the planets. However, there is not as much detail as you might first expect. Their size is also adjustable.

The current time can be set and there is a very nice control panel to allow you to adjust the speed of animation and the direction in which the main observation window is looking.

One very useful option is the full screen. This removes all the distracting window scroll bars and bits of DeskTop and allows the stars with their subtle magnitude differences to be seen at their best.

Once you have a good view you can save the model setup so that you can easily recreate it. You can also save individual pictures in sprite or draw formats.

In the geocentric view you have options to compensate for atmospheric distortion, add an artificial horizon and superimpose a right ascension and declination grid over the sky. This means you can watch a planet rise and see it while it is still below your horizon.

Another very good aspect of this application is that if you want to know what a particular dot of light is on the screen you simply have to click on it.

After a short time a window opens up giving information. It can be a description of a planet complete with picture, or the star's name or designation, magnitude and a mini diagram of the constellation.

This makes identification very easy. If you like you can superimpose the constellation lines on the whole sky.

Given something as vast as the whole solar system to explore it is not always obvious to a beginner what to look for. Therefore I was pleased to see some saved Orrery models illustrating interesting phenomena.

For example, retrograde motion is where a planet appears to be going backwards. It's not of course – it's just that the observer is going faster and catching it up.

The exercises are stored as a text file making it easy for teachers to make up their own worksheets. Not only will these increase your understanding of astronomical events they will also develop your control of the program.

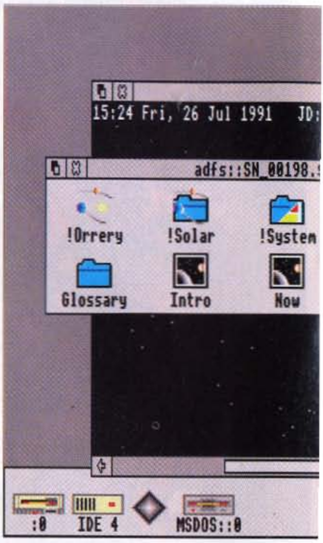
They range in complexity from the simple: *Use Orrery to count how many planets there are in the solar system,* to the complex: *Use Orrery to find out what time of date the solar eclipse of January 16th 1991 in Australia occurred.*

Model answers are also provided for most of these to check your results. As a final little bonus there is a window with a scale drawing of the solar system. Of course the planet diameters and distances are on a different scale, otherwise you wouldn't be able to see anything. With this you can realise what a long scroll it is out to Pluto.

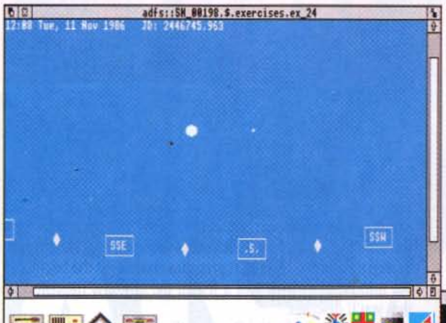
My only criticism of the program as a whole was the slow action of the menus, which illustrated the large number of calculations being performed and did call for patience while adjusting settings.

Summing up

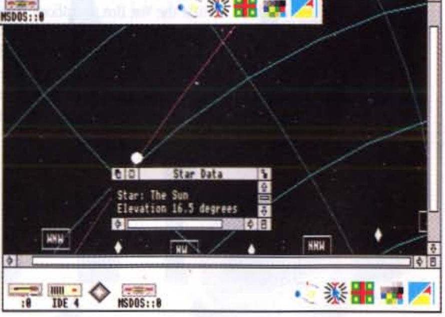
Now on cloudy nights the splendours of the heavens are available to you on your own computer. This sort of program helps to give you a feel for what's going on out there and shows you the ever-changing patterns in the sky. It's definitely worth examination.



Contents of the Orrery disc and Jupiter

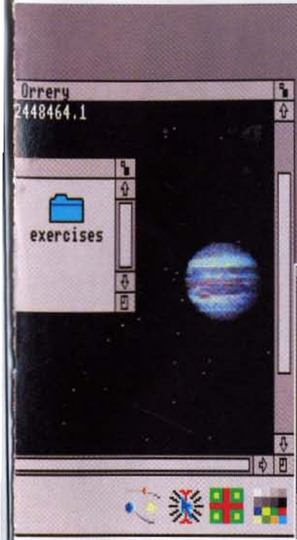

adfs::SN_00198.$.exercises.ex_24
12:00 Tue, 11 Nov 1986 JD: 2446745.963
SSE
S
SSW
:0
IDE 4
MSDOS::0

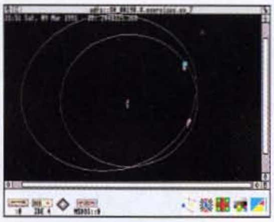
Atmospheric effects can be added



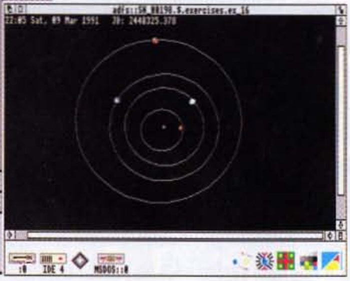
Star: The Sun
Elevation 16.5 degrees

A view from Earth showing the Sun's path


Orrery
2448464.1
exercises


:0
IDE 4
MSDOS::0

Pluto's eccentricity revealed

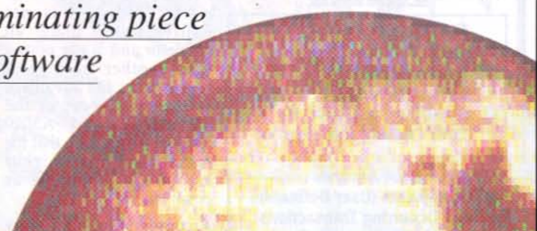

adfs::SK_88198.$.exercises.ex_16
:0
IDE 4
MSDOS::0

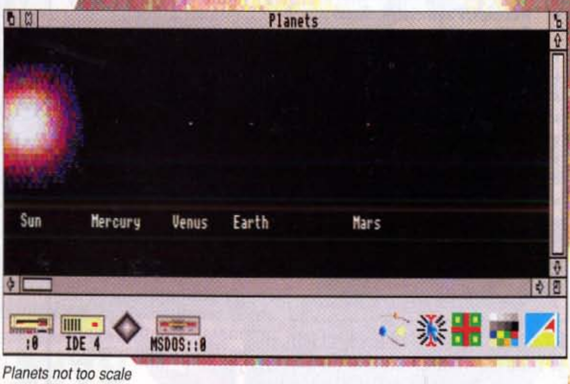
22:05 Sat, 09 Mar 1991 JD: 2448325.378

The inner planets

azing

Mike Cook looks at an astronomically illuminating piece of software




Planets
Sun
Mercury
Venus
Earth
Mars
:0
IDE 4
MSDOS::0

Planets not too scale

The Planet Sprites

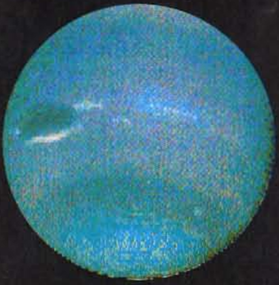
Each planetary image has been scanned from an enhanced colour picture. They can be viewed with or without the orbital paths or not seen at all.

Earth

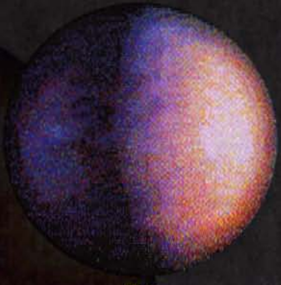
Jupiter

Mars

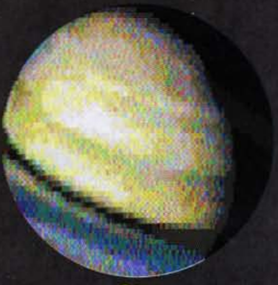
Mercury



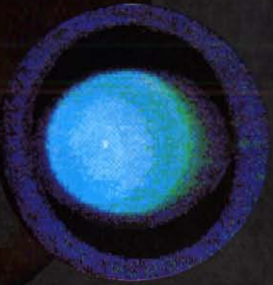
Neptune



Pluto



Saturn



Uranus

Venus

SAVE MONEY AND THE ENVIRONMENT

In 1989 Western Europeans threw away over **128 million** printer ribbons. They weighed over **9,000 tonnes** in total and would reach **right around the world** if laid end to end. A used ribbon cartridge is being thrown away somewhere in the UK **every second** of every day.

You can help put an end to this environmental waste and save some money at the same time thanks to ***RE-INK*,** a revolutionary new spray which brings new life to exhausted fabric printer ribbons.

RE-INK is cost effective and simple to use. Simply open up your plastic ribbon cartridge, spray a few squirts of ***RE-INK's*** special ink and lubricant formula and your ribbon is good as new – sometimes even better!

BEST OF ALL, ***RE-INK*** *IS AVAILABLE IN THIS SPECIAL READER OFFER FOR ONLY* **£12.95**

Order using the form on Page 136

- ★ ***RE-INK*** will save up to **90%** on what you currently spend on new ribbons
- ★ ***RE-INK*** – treated ribbons give **clearer, blacker** print than new ribbons
- ★ ***RE-INK*** is a very **high quality ink** – no blotchy or patchy ink
- ★ ***RE-INK*** is universal – it works with **all** fabric ribbons
- ★ ***RE-INK*** can extend the life of your printer with its special **lubricant** oils

Alsystems
EDUCATION AND TRAINING MICROCOMPUTER SYSTEMS
SJ RESEARCH
Telephone ALTON (0420) 561111
IBM AUTHORISED DEALER
Acorn The choice of experience APPROVED DEALER

WE'VE MOVED!

Opening on 9th September, our new premises will enable us to provide you with better training and showroom facilities.

47 WINCHESTER ROAD,
FOUR MARKS, ALTON,
HANTS, GU34 5HG.

NEW TELEPHONE 0420 561111

Arcounts Manager

The Professional Solution

FEATURES
✓ Sales, Purchase, Nominal Ledgers
✓ Budget Reports
✓ Sales/Purchase Analysis
✓ Debt Chasing and other letters
✓ Aged Debt Analysis
✓ Statements (User Definable)
✓ Re-Occurring Transactions
✓ Receipt/Payment/Refund & Contra Processing
✓ Invoice Search Facility
✓ RISCOS multi-tasking
✓ Text Editor
✓ Trial Balance/Quick Ratio
✓ VAT Return
✓ Profit/Loss & Balance Sheet
✓ Self re-building data files
✓ Hold transaction or Account
✓ Miscellaneous Accounts
✓ Upgradeable
✓ Full Support included
✓ Mouse or Keyboard Driven
✓ Now includes Freeform invoicing

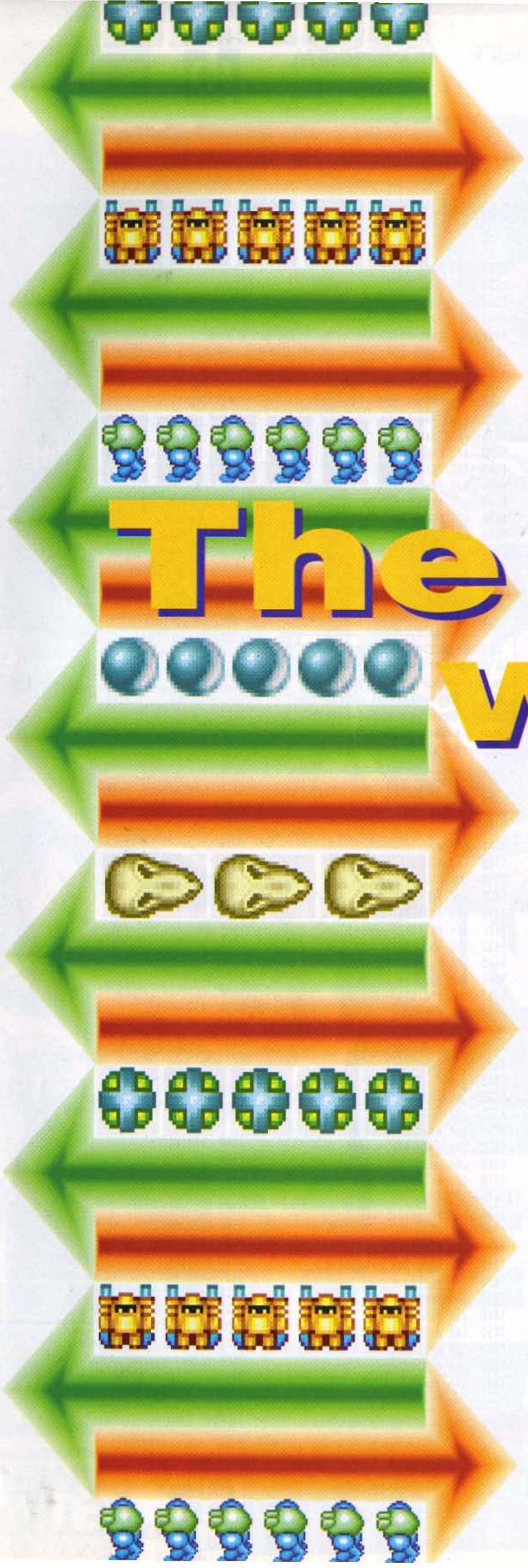
KENDAL COMPUTER CENTRE
68 Stramongate, Kendal, CUMBRIA LA9 4BD
Tel: 0539 722559

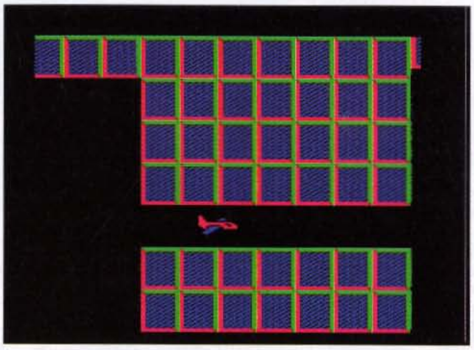
Arcounts Manager is the ultimate Archimedes Accounting system on the market today. It is not written to run under an emulator and is not ported from another machine, it simply takes full advantage of the raw power of the Archimedes and A3000 computers to ensure that the computerisation of your accounts is as simple as possible.

Arcounts Manager is very simple to learn and use, data entry is clear and logical, reports and concise and to the point.

Because Arcounts Manager puts you in control of your finances, it can greatly improve your cash flow, as well as perform the traditional functions such as VAT returns and Profit/Loss reports.

Priced at only £299.00 +VAT, there is really only one choice if you are serious about computerising your accounts. Contact your dealer for a demonstration TODAY.





Hardware scrolling

The hard way...

Paul Bedworth rounds off his guide to super-slick scrolling

IN the July issue we saw how a program could software scroll a matrix of sprites. This month's program achieves the same thing, but uses the CRTC chip to do all the work.

The 6845 CRTC controls the output from the computer to the television or monitor screen. It decides what to put on the screen by the data held in the screen memory.

We can achieve scrolling by changing the start of the screen memory as recognised by this chip – you can think of it as moving the screen around the memory.

I'm not going to go into great detail as to how to accomplish it, but it is simply a matter of altering registers 12 and 13 belonging to the CRTC.

One point needs clarifying: The address of the screen start is changed, starting at the lowest point in memory, let's say &3000. This is slowly incremented and eventually reaches &3240 which is that start of the next line.

This wraparound gives the effect of the screen appearing one row higher up the screen. Luckily for us this doesn't matter, as we can carry out the screen update on that area, completely erasing the line with the new column of sprite data. If you did want a display that wrapped around you would have to write a routine to knock out this line and copy another part of the screen into the gap.

As you can see, the general format of the data in this month's listing is identical to the previous one, apart from the default map width being larger. Because hardware scrolling shifts the whole screen, there is no need to compromise size for speed.

The scroll is significantly slowed down by the:

```
LDA #19:JSR OSBYTE
```

in the *deletesprites* procedure. Try removing this, and you will get super-fast scrolling. The only reason it is there is to make sure that the demonstration routine sprites don't flicker.

Again the demonstration routine is a miniature game featuring yet another spacecraft for you to control. This is harder to get right, however, because the foreground sprite has to be moved against the hardware scroll just to stay still.

● *So that's it on scrolling. With these methods under your belt you too could write sideways scrolling shoot-'em-ups to your heart's content.*

➤

```
   10 REM Hardware Scroller
   20 REM by Paul Bedworth
   30 REM (c) The Micro User
   40 :
   50 cheat=&88
   60 ?cheat=FALSE
   70 :
   80 *FX12,4
   90 MapDepth=7
  100 SprWidth=4
  110 SprDepth=32
  120 IncNr=&140*(SprDepth/8)
  130 osbyte=&FFF4
  140 oswrch=&FFEE
  150 data=&70:addr=&72:m=&74:a=
&76
  160 :
  170 FOR P=0 TO 2 STEP 2
  180 P%=&1100
  190 [OPT P
  200  JMP scroll
  210 .xydata
  220  OPT FNxydata
  230 .calc LDY y:LDA xydata,Y
  240  STA a:LDA xydata+32,Y
  250  STA a+1
  260  LDA x:BEQ endit:TAY
  270 .cl LDA a:CLC:ADC #8:STA a
  280  LDA a+1:ADC #0:STA a+1
  290  DEY:BNE cl
  300 .endit
  310  RTS
  320 .splot        \ plot sprite
  330  LDA addr
  340  PHA
  350  STA tcaddr
  360  LDA addr+1
  370  PHA
  380  STA tcaddr+1
  390  LDY cols:DEY:BEQ l1
  400 .gcl LDA data:CLC
  410  ADC #SprDepth:STA data
  420  LDA data+1:ADC #0:STA dat
a+1
  430  DEY:BNE gcl
  440 .l1
  450  LDY #0
  460  LDX #4
  470 .l2
  480  LDA (data),Y \ This is no
t
  490  STA (addr),Y \ bad progra
mming!
  500  INY          \ Makes it f
aster
  510  LDA (data),Y
  520  STA (addr),Y
  530  INY
  540  LDA (data),Y
  550  STA (addr),Y
  560  INY
  570  LDA (data),Y
  580  STA (addr),Y
  590  INY
  600  LDA (data),Y
  610  STA (addr),Y
  620  INY
  630  LDA (data),Y
  640  STA (addr),Y
  650  INY
  660  LDA (data),Y
  670  STA (addr),Y
  680  INY
  690  LDA (data),Y
  700  STA (addr),Y
  710  INY
  720  LDA addr
  730  CLC
  740  ADC #&38
  750  STA addr
  760  LDA addr+1
  770  ADC #1
  780  STA addr+1
  790  DEX
  800  BNE l2
  810  PLA
  820  STA addr+1
  830  PLA
  840  STA addr
  850  RTS
  860 .eorsplot
  870  LDA a
  880  PHA
  890  STA tcaddr
  900  LDA a+1
  910  PHA
  920  STA tcaddr+1
  930 .el1
  940  LDY #0
  950  LDX #4:STX cd
  960 .eel2 LDX #8
  970 .el2
  980  LDA (data),Y:BEQ black
  990  PHA:LDA (a),Y:BEQ nohit
 1000  LDA col:BEQ nohit
 1010  LDA cheat:BNE nohit
 1020  JSR dead:JMP scroll
 1030 .nohit
 1040  PLA
 1050 .black
 1060  EOR (a),Y:STA (a),Y:INY
 1070  DEX:BNE el2
 1080  LDA a:CLC:ADC #&38:STA a
 1090  LDA a+1:ADC #1:STA a+1
 1100  DEC cd
 1110  BNE eel2
 1120  LDA data
 1130  CLC:ADC #SprDepth:STA dat
a
 1140  LDA data+1:ADC #0:STA dat
a+1
 1150  LDA tcaddr:ADC #8:STA a
 1160  STA tcaddr
 1170  LDA tcaddr+1:ADC #0:STA t
caddr+1
 1180  STA a+1
 1190  DEC cols
 1200  BNE el1
 1210  PLA:STA a+1
 1220  PLA:STA a:RTS
 1230  :
 1240 .vdudata
 1250  OPT FNequd(0)
 1260  OPT FNequw(0)
 1270  OPT FNequb(4)
 1280  OPT FNequb(2)
 1290  OPT FNequb(19)
 1300  OPT FNequb(0)
 1310  OPT FNequd(0)
 1320  OPT FNequw(0)
 1330  OPT FNequb(28)
 1340  OPT FNequb(6)
 1350  OPT FNequb(0)
 1360  OPT FNequb(23)
 1370  OPT FNequd(0)
 1380  OPT FNequw(0)
 1390  OPT FNequb(2)
 1400  OPT FNequb(3)
 1410  OPT FNequb(19)
 1420  OPT FNequd(0)
 1430  OPT FNequw(0)
 1440  OPT FNequb(30)
 1450  OPT FNequb(7)
 1460  OPT FNequb(0)
 1470  OPT FNequd(23)
 1480  OPT FNequb(5)
 1490  OPT FNequb(22)
 1500
 1510 .scroll
 1520  LDX #43
 1530 .vdul
 1540  LDA vdudata,X
 1550  JSR oswrch
 1560  DEX
 1570  BNE vdul
 1580  LDA #19:JSR osbyte
 1590  LDA #&00:STA ts
 1600  LDA #&58:STA ts+1
 1610  LDA #&38:STA addr
 1620  LDA #&59:STA addr+1
 1630  LDA #map MOD 256:STA m
 1640  LDA #map DIV 256:STA m+1
 1650  LDA #15:STA x:STA xx
 1660  LDA #12:STA y:STA yy
 1670  JSR plotsprites
 1680  JSR &FFE0
 1690 .oospl
 1700  LDA #1:STA c
 1710 .ospl
 1720  JSR left
 1730  JSR clearline
 1740  LDA #19:JSR osbyte
 1750  LDA addr:STA topaddr
 1760  LDA addr+1:STA topaddr+1
 1770  LDA m:STA oldm:LDA m+1:ST
A oldm+1
 1780  LDA #MapDepth:STA d
 1790 .spl
 1800  LDY #0:LDA (m),Y
 1810  CMP #&EA:BNE notendmap
 1820  JMP welldone
 1830 .notendmap
 1840  JSR schoose
 1850  LDA m:CLC:ADC #1:STA m
 1860  LDA m+1:ADC #0:STA m+1
 1870  LDA c:STA cols
 1880  JSR splot
 1890  LDA addr:CLC:ADC #IncNr M
OD 256
 1900  STA addr
 1910  LDA addr+1:ADC #IncNr DIV
 256
 1920  STA addr+1
 1930  DEC d
 1940  BNE spl
 1950  LDA topaddr:STA addr
 1960  LDA topaddr+1:STA addr+1
 1970  LDA oldm:STA m
 1980  LDA oldm+1:STA m+1
 1990  INC c
 2000  LDA c
 2010  CMP #SprWidth+1
 2020  BEQ nospl
 2030  JMP ospl
 2040 .nospl
 2050  LDA m:CLC:ADC #MapDepth:S
TA m
 2060  LDA m+1:ADC #0:STA m+1
 2070  JMP oospl
 2080  RTS
 2090 .clearline
 2100  LDA addr:STA topaddr
 2110  LDA addr+1:STA topaddr+1
 2120  LDA #MapDepth:STA d
 2130 .cll
 2140  LDA #32:JSR schoose
 2150  LDA #1:STA cols
 2160  JSR splot
 2170  LDA addr:CLC:ADC #IncNr M
OD 256
 2180  STA addr
 2190  LDA addr+1:ADC #IncNr DIV
 256
 2200  STA addr+1
 2210  DEC d
 2220  BNE cll
 2230  LDA topaddr:STA addr
 2240  LDA topaddr+1:STA addr+1
 2250  RTS
 2260 .left
 2270  CLC:LDA ts:ADC #8:STA ts
 2280  BCC sleft
 2290  INC ts+1
 2300 .sleft
 2310  LDA ts:CLC:ADC #&138 MOD
256
 2320  STA addr
 2330  LDA ts+1:ADC #&138 DIV 25
6
 2340  STA addr+1
 2350 .doscroll
 2360  LDA ts+1:BPL check1
 2370  SEC:SBC #&50:STA ts+1
 2380 .check1
 2390  CMP #&30
 2400  BPL update
 2410  CLC:ADC #&50:STA ts+1
 2420 .update
 2430  JSR deletesprites
 2440  LDA ts+1:STA tempA
 2450  LDA #13:STA &FE00
 2460  LDA ts:LSR tempA:ROR A
 2470  LSR tempA:ROR A:LSR tempA
:ROR A
 2480  STA &FE01
 2490  LDA #12:STA &FE00
 2500  LDA tempA:STA &FE01
 2510  JSR plotsprites
 2520  RTS
 2530 .deletesprites
```

SUBSCRIBE NOW!
If you prefer to save the wear and tear on your fingers you'll find this listing – together with all the others from this issue – on this month's disc, sent free if you subscribe to *The Micro User*.

Poster

A&B COMPUTING 1990 ART/DESIGN AWARD WINNER

An object-based DTP package which allows you to do far more than create posters. In fact there isn't much in the way of DTP design and layout that can't be done with Poster. It's almost an art package. The application is fully RISC OS compliant, so can 'talk' to Edit, Draw and any other RISC OS program. Poster comes with its own set of unusual outline fonts but will allow you to use any RISC OS outline fonts. It also has a huge collection of interesting borders and clip art. Two features place Poster in a different league from other packages. Firstly, you can do wonderful things with text. It can be made to flow along any path or it can be moulded into virtually any shape (as can outline Draw files). Secondly, the size of your document is not dependent upon the limitations of your printer. Poster will allow a document of any size to be created (although 100 metres square is not very practical). It then prints the document in sections which can be cut and assembled using the trim marks. Poster documents may be used in other DTP packages.

Snippet

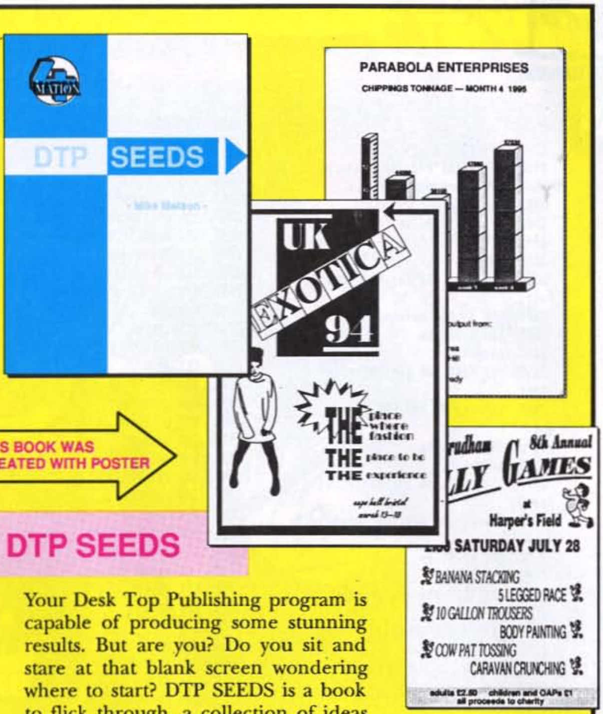
A utility which will make you wonder how you ever managed without it. Snippet will allow you to print or save any part of any screen. It will even cope with most programs running under the 65Host BBC Emulator. But Snippet will allow you to do lots more. Sprites may be converted from one mode to another and even 8 bit BBC screens may be easily converted into Archimedes sprites. A vast array of tools allows you to trim sprites, add borders, change colours, use outline fonts to add text, edit pixels, rotate sections and combine any number of sprites to make a single sprite. A carousel allows sprites to be displayed.

ALSO...

JIGSAW — allows sprites of any size to be converted into jigsaws with real jisaw-shaped pieces. It comes complete with a set of pictures including some by the well-known artist Rodney Matthews.

JIGLET — the version for younger users. It has fewer pieces and a more appropriate set of pictures.

CRAFTSHOP 1 and CRAFTSHOP 2 — programs allowing those with limited artistic ability to create some stunning results. Both packages are currently in use in thousands of schools and homes.



THIS BOOK WAS CREATED WITH POSTER

DTP SEEDS

Your Desk Top Publishing program is capable of producing some stunning results. But are you? Do you sit and stare at that blank screen wondering where to start? DTP SEEDS is a book to flick through, a collection of ideas designed to get your imagination working. There are no pages of heavy text to wade through, no references to kerning and leading; just page after page of examples for you to copy, adapt and improve upon. The contents are divided into:

School Stationery • Business Stationery • Emphasis
Page Layouts • Front Pages • Covers • Posters
Graphs • Titles • Flyers • Contents Pages • Logos
Advertisements • Invitations • Headers • Footers

FREE SITE LICENCE !!!

We could charge you three, four, or even more, times the normal price for a site licence. But we won't. For our Archimedes packages the price you see is the price you pay. And this price includes a site licence.

NEW ADDRESS

4MATION
14 Castle Park Road,
Barnstaple • Devon • EX32 8PA
Tel: (0271) 25353 Fax: (0271) 22974

4MATION New Zealand
P.O.Box 12-228
Christchurch
Fax: (03) 655-055

4MATION

	£	NZ$
POSTER	89	367.50
SNIPPET	29	120.00
JIGSAW	29	120.00
JIGLET	29	120.00
CRAFTSHOP 1	29	120.00
CRAFTSHOP 2	29	120.00
DTP SEEDS	8.45	35.00

PRICES
include P&P
include site licence
exclude VAT @ 17½%

(discount on 5 or more copies)
no VAT on books

➤

```
 2540  LDA #0:STA col
 2550  LDA #ASC("P"):JSR schoose
 2560  LDA #SprWidth:STA cols
 2570  JSR calc
 2580  LDA #19:JSR osbyte
 2590  JSR eorsplot
 2600  INC x
 2610  LDX #&9E:JSR key:BNE notm
left
 2620  LDA xx:BEQ notmleft
 2630  DEC x:DEC xx
 2640 .notmleft
 2650  LDX #&BD:JSR key:BNE notm
right
 2660  LDA xx:CMP #35:BEQ notmri
ght
 2670  INC x:INC xx
 2680 .notmright
 2690  LDX #&97:JSR key:BNE notm
down
 2700  LDA yy:CMP #24:BEQ notmdo
wn
 2710  INC y:INC yy
 2720 .notmdown
 2730  LDX #&B7:JSR key:BNE notm
up
 2740  LDA yy:BEQ notmup
 2750  DEC y:DEC yy
 2760 .notmup
 2770  RTS
 2780 .key
 2790  LDA #129
 2800  LDY #255
 2810  JSR osbyte
 2820  CPY #255
 2830  RTS
 2840 .plotsprites
 2850  LDA #1:STA col
 2860  LDA #ASC("P"):JSR schoose
 2870  LDA #SprWidth:STA cols
 2880  JSR calc:JSR eorsplot
 2890  RTS
 2900 .schoose
 2910  STA symbol
 2920  STY ystore
 2930  LDY #0
 2940 .searchl
 2950  LDA sptable,Y
 2960  BEQ notfound
 2970  CMP symbol
 2980  BEQ foundit
 2990  INY:INY:INY
 3000  JMP searchl
 3010 .foundit
 3020  LDA sptable+1,Y
 3030  STA data
 3040  LDA sptable+2,Y
 3050  STA data+1
 3060  LDY ystore
 3070  RTS
 3080 .notfound
 3090  LDA sptable+1
 3100  STA data
 3110  LDA sptable+2
 3120  STA data+1
 3130  LDY ystore
 3140  RTS
 3150 .dead
 3160  LDY #255
 3170 .vl LDX #3
 3180 .v19l
 3190  CPX #2:BEQ notgreen
 3200  LDA #19:JSR oswrch
 3210  LDA #0:JSR oswrch
 3220  TXA:JSR oswrch
 3230  LDA #0:JSR oswrch
 3240  JSR oswrch:JSR oswrch
 3250 .notgreen
 3260  DEX
 3270  BNE v19l
 3280  DEY:BNE vl
 3290 .novdus
 3300  JSR wait
 3310  RTS
 3320 .welldone
 3330  JSR wait
 3340  LDX #0
 3350 .msg LDA text,X
 3360  JSR oswrch
 3370  INX
 3380  CMP #0
 3390  BNE msg
 3400  LDA #21
 3410  LDX #0
 3420  JMP osbyte
 3430 .wait
 3440  LDX #255
 3450 .w1 LDX #255
 3460 .w2 NOP:NOP:NOP
 3470  NOP:NOP:NOP
 3480  DEX:BNE w2
 3490  DEY:BNE w1
 3500  RTS
 3510 .text
 3520  OPT FNequb(22)
 3530  OPT FNequb(5)
 3540  OPT FNequb(31)
 3550  OPT FNequb(2)
 3560  OPT FNequb(4)
 3570  OPT FNequs("Well Done!")
 3580  OPT FNequb(31)
 3590  OPT FNequb(2)
 3600  OPT FNequb(6)
 3610  OPT FNequs("Level 2 Compl
eted!")
 3620  BRK:NOP
 3630 .map
 3640  OPT FNequs("0       ")
 3650  OPT FNequs("0       ")
 3660  OPT FNequs("0       ")
 3670  OPT FNequs("0       ")
 3680  OPT FNequs("0       ")
 3690  OPT FNequs("0       ")
```

Get it right ✓

```
  10 =    0 0 | 450 = 9CF1 F |  890 = 5DBB 6 | 1330 =  E6A 1 | 1770 = 2A8A 2 | 2210 = 248E C | 2650 = F168 7 | 3090 = 8FE4 1 | 3530 = 9A2C 0 | 3970 = 5FF2 5
  20 =    0 0 | 460 = AAC1 A |  900 = 3F74 B | 1340 = CF7F C | 1780 = F7D0 1 | 2220 = 739B A | 2660 = 61A7 4 | 3100 = 8826 1 | 3540 = 83C2 C | 3980 = 4FB9 8
  30 =    0 0 | 470 = C591 4 |  910 = 824E 7 | 1350 = 65D9 C | 1790 = B13F A | 2230 = 4E57 2 | 2670 = 43D5 D | 3110 = BF87 2 | 3550 =  3BB 4 | 3990 = 4FB9 0
  40 = 9719 9 | 480 = 71E4 5 |  920 = 923D D | 1360 = D290 1 | 1800 = E8F0 9 | 2240 =  501 4 | 2680 = DAE6 D | 3120 = 2AFB A | 3560 = A91D C | 4000 = 4FB9 C
  50 = 18E8 2 | 490 = 5047 0 |  930 = 8DBA 4 | 1370 = 4240 C | 1810 = CBC3 9 | 2250 = 9843 C | 2690 = 65EA A | 3130 = 3905 8 | 3570 = 844B 0 | 4010 = 4FB9 D
  60 = 41B9 5 | 500 = 97CF 5 |  940 = 9CF1 E | 1380 = C23B B | 1820 = A5DD 0 | 2260 = 3EF8 7 | 2700 =  77C 1 | 3140 = 9843 D | 3580 = 83C2 2 | 4020 = 5A8B 9
  70 = 9719 8 | 510 = 423D 8 |  950 = 4137 E | 1390 =  3BB 6 | 1830 = 5C8E 3 | 2270 = 58DE E | 2710 = 2716 B | 3150 = 309D 9 | 3590 =  3BB 5 | 4030 = 5A8B E
  80 = A992 C | 520 = 8D34 0 |  960 = 1104 4 | 1400 = 308A 1 | 1840 = 2D06 0 | 2280 = 9DCD 3 | 2720 = BD95 0 | 3160 = 504E 2 | 3600 = CF7F F | 4040 = 69AA 5 | 4410 = 11CC 0
  90 = CBAD B | 530 = 6623 0 |  970 = BDD9 4 | 1410 = 640B 8 | 1850 = AC13 3 | 2290 = 194B F | 2730 = 4005 4 | 3170 = D975 B | 3610 = A798 F | 4050 = 5F24 9 | 4420 =  435 D
 100 =  891 3 | 540 = 423D F |  980 = 1B85 E | 1420 = 4240 7 | 1860 = 82C1 5 | 2300 = BF1B C | 2740 = FAA1 E | 3180 = 4242 2 | 3620 = BEA5 0 | 4060 = 5F24 6 | 4430 = 1B50 0
 110 = 2401 C | 550 = 8D34 7 |  990 = 7BD7 D | 1430 = C23B E | 1870 = 8DA2 A | 2310 = AF87 3 | 2750 = 4AD7 2 | 3190 = FD84 E | 3630 =  AA2 D | 4070 = 5F24 3 | 4440 = DA42 9
 120 =   AE 1 | 560 = 6623 D | 1000 = 3373 3 | 1440 = 70B9 5 | 1880 = 7600 D | 2320 = FEB2 3 | 2760 = 2765 A | 3200 = 3863 5 | 3640 =  CDA B | 4080 = 5F24 D | 4450 = 73AB 0
 130 = 7966 A | 570 = 423D B | 1010 = E7CF 1 | 1450 = 44F1 9 | 1890 = 496F E | 2330 = 45F5 C | 2770 = 9843 5 | 3210 = 7D3F 7 | 3650 =  CDA E | 4090 = 5F24 E | 4460 = FD2E 6
 140 =   78 8 | 580 = 8D34 0 | 1020 = 5DE7 5 | 1460 = 65D9 7 | 1900 = FEB2 F | 2340 = 4B39 8 | 2780 = E5EF 1 | 3220 = E6B8 C | 3660 =  CDA 5 | 4100 = 5F24 E | 4470 = 9719 3
 150 = ECCB D | 590 = 6623 B | 1030 = 5388 C | 1470 = 1F15 4 | 1910 = 9B9B 3 | 2350 = E8F5 8 | 2790 = 46C3 0 | 3230 = 7D3F 5 | 3670 =  CDA 0 | 4110 = 5F24 8 | 4480 = 38DB 0
 160 = 9719 8 | 600 = 423D 4 | 1040 = 4E8A F | 1480 = 9A2C E | 1920 = 4B39 9 | 2360 = 98D7 C | 2800 = 504E 6 | 3240 = 8742 1 | 3680 =  CDA E | 4120 = 5F24 6 | 4490 = 26E0 4
 170 = 71C1 5 | 610 = 8D34 F | 1050 = D1FB C | 1490 = E1A1 4 | 1930 = 248E 9 | 2370 = 6286 8 | 2810 = 8E7E 0 | 3250 = 65D5 F | 3690 =  CDA 9 | 4130 = 50AC 5 | 4500 = E910 F
 180 = E3C5 3 | 620 = 6623 3 | 1060 = E368 F | 1500 = D1AD D | 1940 = 76E6 D | 2380 =   79 6 | 2820 = 7F31 8 | 3260 = E8A9 7 | 3700 = 4455 7 | 4140 = 6EE2 E | 4510 = 215F 7
 190 = 6C81 3 | 630 = 423D F | 1070 = 2D80 2 | 1510 = DB26 2 | 1950 = 4E57 E | 2390 = 8F02 4 | 2830 = 9843 4 | 3270 = 32E9 5 | 3710 = 4455 9 | 4150 = 4A9D 6 | 4520 = 8890 A
 200 = C5FB A | 640 = 8D34 7 | 1080 = CC7D 5 | 1520 = D390 9 | 1960 =  501 1 | 2400 = F5DB 5 | 2840 = E2E1 1 | 3280 = ABCE F | 3720 = 4455 7 | 4160 = 688D 0 | 4530 = E2A3 6
 210 = 2638 B | 650 = 6623 C | 1090 = 1D4B 9 | 1530 = BFDD 6 | 1970 = E1C1 2 | 2410 = 9B3F 7 | 2850 = EA52 D | 3290 = 64FF 9 | 3730 = 4455 7 | 4170 = 3668 1 | 4540 = 9719 6
 220 = BC45 5 | 660 = 423D 3 | 1100 = 5F53 D | 1540 = F9FF 0 | 1980 = B081 B | 2420 = 8083 2 | 2860 = 7858 9 | 3300 = 967B 8 | 3740 = 4455 6 | 4180 = 8CBC C | 4550 = 1E0E 0
 230 = 9E7C 0 | 670 = 8D34 B | 1110 = 7AED D | 1550 = 9224 4 | 1990 = 6B0C 7 | 2430 = D071 C | 2870 = D7AC 8 | 3310 = 9843 7 | 3750 = 4455 1 | 4190 =  4A5 6 | 4560 = 4664 E
 240 = 22E6 F | 680 = 6623 7 | 1120 = 5B2B 0 | 1560 = E8A9 4 | 2000 = 4E90 3 | 2440 = 78F5 0 | 2880 = AC61 0 | 3320 = 9F71 F | 3760 = 4455 9 | 4200 = 640C 0 | 4570 = 6098 B
 250 = 9862 3 | 690 = 423D F | 1130 = 6245 7 | 1570 = CF76 3 | 2010 = 8E99 A | 2450 = 53B3 C | 2890 = 9843 1 | 3330 = 967B 3 | 3770 = 541E 2 | 4210 = FE38 E | 4580 = CD79 B
 260 =  90C C | 700 = 8D34 0 | 1140 = 56AB 6 | 1580 = 2439 8 | 2020 = 3F4D 8 | 2460 = 8908 3 | 2900 = 68FC 5 | 3340 = EA45 9 | 3780 = 7DBB C | 4220 = 4B3D 1 | 4590 = E2A3 8
 270 = 70F1 0 | 710 = 6623 3 | 1150 = 8526 8 | 1590 = 871F 1 | 2030 = 817D 6 | 2470 = A13D 3 | 2910 =  599 0 | 3350 = A384 8 | 3790 = 3BA1 D | 4230 = 36F9 9 | 4600 = 9719 5
 280 = F668 8 | 720 = 2DBF D | 1160 = 5DBB 4 | 1600 = 5EFA 5 | 2040 = CAC8 5 | 2480 = EC61 C | 2920 = A8DC 4 | 3360 = 9224 4 | 3800 = 7DBB D | 4240 = 7FA5 0 | 4610 = DF89 C
 290 = 5748 C | 730 = 74FB 3 | 1170 = 92F0 7 | 1610 = AB4A 9 | 2050 = 3311 B | 2490 = 8BFA F | 2930 = 9CF1 D | 3370 = 7602 2 | 3810 = 4FB9 A | 4250 = 70CE D | 4620 = 6701 C
 300 = BCA2 7 | 740 = 7E04 0 | 1180 = 9862 3 | 1620 = 587A 0 | 2060 = 82C1 2 | 2500 = 9F35 6 | 2940 = 5481 D | 3380 =  2F9 A | 3820 = 4FB9 B | 4260 =  483 4 | 4630 = B4A7 F
 310 = 9843 6 | 750 = FEB2 2 | 1190 = 8455 3 | 1630 = D10B 8 | 2070 = 1A58 4 | 2510 = 14AB D | 2950 = FBDD B | 3390 = CABC F | 3830 = 5BA8 5 | 4270 = 3130 9 | 4640 = 754B 1
 320 = 20DB A | 760 = DAE0 B | 1200 = 4A63 F | 1640 = E1D5 B | 2080 = 9843 E | 2520 = 9843 D | 2960 = 3FB9 5 | 3400 = F552 F | 3840 = 5BA8 C | 4280 = 6594 4 | 4650 = 2249 0
 330 = 2DBF 4 | 770 = B19F 6 | 1210 = 7FB4 D | 1650 =  F0F 2 | 2090 = C7AB 3 | 2530 = 8098 F | 2970 = 7A4A D | 3410 = EA45 6 | 3850 = 4576 E | 4290 = 8E38 5 | 4660 = 9719 F
 340 = 824E B | 780 = 4B39 1 | 1220 = F8FD C | 1660 = 1BCA 7 | 2100 = 1C30 4 | 2540 =  171 4 | 2980 = 4D17 2 | 3420 = 2151 9 | 3860 = 4576 B | 4300 =  5D7 D | 4670 = E4D6 D
 350 = 5DBB 8 | 790 = E8A9 F | 1230 = 9719 D | 1670 = 14AB C | 2110 = 56EA F | 2550 = 7858 E | 2990 = EF1B A | 3430 = F7BE 4 | 3870 = 5A8B C | 4310 = 1DBE 1 | 4680 = 9872 0
 360 = DAE0 7 | 800 = 33D9 1 | 1240 = 2037 7 | 1680 = EB7F E | 2120 = F7D0 D | 2560 = D7AC 4 | 3000 = 7A7E 8 | 3440 = 15EE 6 | 3880 = 5044 8 | 4320 = C0AF 9 | 4690 = 517A C
 370 = 824E 3 | 810 = 4E8A 2 | 1250 = 4240 E | 1690 = 6099 3 | 2130 = B442 0 | 2570 = DA0E C | 3010 = 600E 4 | 3450 = 9CD5 D | 3890 = 7DBB C | 4330 = 4C3E 7 | 4700 = 915A A
 380 = 923D 1 | 820 = 4B39 1 | 1260 = C23B D | 1700 = ABE6 D | 2140 = 4C9B 4 | 2580 = 2439 B | 3020 = 3E5B 1 | 3460 =  B2E 5 | 3900 = 7DBB 7 | 4340 = 6721 8 | 4710 = 9719 2
 390 = 2836 1 | 830 = 4E8A 4 | 1270 = A91D 9 | 1710 = 6E0B F | 2150 = 4090 F | 2590 = 7EEF 2 | 3030 = 8826 1 | 3470 = B82F 0 | 3910 = 7DBB E | 4350 =  F5D 6 | 4720 = 9E0D E
 400 = 8FB9 6 | 840 = FEB2 1 | 1280 =  3BB 7 | 1720 = 5F3D D | 2160 = 7600 3 | 2600 = C856 D | 3040 = 670B 4 | 3480 = 6417 B | 3920 = 4FB9 3 | 4360 = 133A F | 4730 = E90F 9
 410 = A552 1 | 850 = 9843 4 | 1290 = 640B 1 | 1730 = 7BC7 7 | 2170 = 496F B | 2610 = 7DD0 A | 3050 = 2AFB 7 | 3490 = 13A7 B | 3930 = 4FB9 D | 4370 = 9436 8 | 4740 =  F9D 4
 420 = 56AB 9 | 860 = 9C8E 3 | 1300 = 65D9 F | 1740 = 2439 E | 2180 = FEB2 A | 2620 = 5380 4 | 3060 = 3905 C | 3500 = 65D3 C | 3940 = 5FF2 8 | 4380 = B5CE 0 | 4750 = F1F5 7
 430 =  3C6 F | 870 = 6ED2 8 | 1310 = 4240 6 | 1750 = 1C30 9 | 2190 = 9B9B 1 | 2630 = 2E14 2 | 3070 = 9843 A | 3510 = 80E0 7 | 3950 = 5FF2 1 | 4390 = 65D9 B | 4760 = 75EE 4
 440 = F5F2 7 | 880 = 824E 8 | 1320 = C23B 5 | 1760 = 56EA E | 2200 = 4B39 2 | 2640 = 7CAE 8 | 3080 = D376 2 | 3520 = E1A1 0 | 3960 = 5FF2 9 | 4400 = 78FE 0 | 4770 = E531 6
```

```
3700  OPT FNequs("0000 00")
3710  OPT FNequs("0000 00")
3720  OPT FNequs("0000 00")
3730  OPT FNequs("0000 00")
3740  OPT FNequs("0000 00")
3750  OPT FNequs("0000 00")
3760  OPT FNequs("0000 00")
3770  OPT FNequs("0    00")
3780  OPT FNequs("0 00000")
3790  OPT FNequs("0 0    ")
3800  OPT FNequs("0 00000")
3810  OPT FNequs("0      0")
3820  OPT FNequs("0      0")
3830  OPT FNequs("00000 0")
3840  OPT FNequs("00000 0")
3850  OPT FNequs("000   0")
3860  OPT FNequs("000   0")
3870  OPT FNequs("000 000")
3880  OPT FNequs("0   000")
3890  OPT FNequs("0 00000")
3900  OPT FNequs("0 00000")
3910  OPT FNequs("0 00000")
3920  OPT FNequs("0      0")
3930  OPT FNequs("0      0")
3940  OPT FNequs("0000  0")
3950  OPT FNequs("0000  0")
3960  OPT FNequs("0000  0")
3970  OPT FNequs("0000  0")
3980  OPT FNequs("0      0")
3990  OPT FNequs("0      0")
4000  OPT FNequs("0      0")
4010  OPT FNequs("0      0")
4020  OPT FNequs("000 000")
4030  OPT FNequs("000 000")
4040  OPT FNequs("00   00")
4050  OPT FNequs("       ")
4060  OPT FNequs("       ")
4070  OPT FNequs("       ")
4080  OPT FNequs("       ")
4090  OPT FNequs("       ")
4100  OPT FNequs("       ")
4110  OPT FNequs("       ")
4120  OPT FNequs("       ")
4130  NOP:NOP
4140 .tcaddr  OPT FNequw(0)
4150 .cols    OPT FNequb(0)
4160 .symbol  OPT FNequb(0)
4170 .ystore  OPT FNequb(0)
4180 .c       OPT FNequb(0)
4190 .d       OPT FNequb(0)
4200 .topaddr OPT FNequw(0)
4210 .oldm    OPT FNequw(0)
4220 .ts      OPT FNequw(0)
4230 .tempA   OPT FNequb(0)
4240 .ends    OPT FNequw(0)
4250 .tca     OPT FNequw(0)
4260 .x       OPT FNequb(0)
4270 .y       OPT FNequb(0)
4280 .xx      OPT FNequb(0)
4290 .yy      OPT FNequb(0)
4300 .cd      OPT FNequb(0)
4310 .col     OPT FNequb(0)
4320 .sptable
4330  OPT FNequs(" ")
4340  OPT FNequw(blankdata)
4350  OPT FNequs("0")
4360  OPT FNequw(blockdata)
4370  OPT FNequs("P")
 4380  OPT FNequw(blockdata+4*32
)
 4390  OPT FNequb(0)
 4400 .blockdata
 4410  OPT FNsdata
 4420 .blankdata
 4430  OPT FNequs(STRING$(4*32,C
HR$(0)))
 4440 ]:NEXT
 4450 PROCexecute
 4460 END
 4470 :
 4480 DEFFNsdata
 4490 RESTORE 4610
 4500 FOR I%=1 TO ((SprWidth*Spr
Depth)/4)*2
 4510 READ d$
 4520 [OPT P:OPT FNequd(EVAL("&"
+d$))
 4530 ]:NEXT:=P
 4540 :
 4550 DEFFNxydata
 4560 RESTORE 4640
 4570 FOR I%=1 TO 64:READ d
 4580 [OPT P:OPT FNequb(d)
 4590 ]:NEXT:=P
 4600 :
 4610 DATA 3C7F7FFF,2C3C1C2C,1C2
C3C1C,3C1C2C3C,2C3C1C2C,1C2C3C1C
,3C1C2C3C,F0F0F2C,60FFFFFF,D060B
0D0,B0D060B0,60B0D060,D060B0D0,B
0D060B0,60B0D060,F0F0FD0,D0FFFFF
F,B0D060B0,60B0D060,D060B0D0,B0D
060B0,60B0D060,D060B0D0,F0F0FB0,
B3FFFFFF
 4620 DATA73B3F373,F373B3F3,B3F3
73B3,73B3F373,F373B3F3,B3F373B3,
1F1F3F73,0
 4630 DATA 0,E0C0C08,F0F0F0E,101
00206,3030,0,0,0,0,0,F0F00,C0E0F
0F0,80,0,0,0,0,E0600000,70E0F00,
383,0,0,0,0,0,0,3060C00,F0F,0,0,
0,0
 4640 DATA 0,64,128,192,0,64,128
,192,0,64,128,192,0,64,128,192,0
,64,128,192,0,64,128,192,0,64,12
8,192,0,64,128,192
 4650 DATA 88,89,90,91,93,94,95,
96,98,99,100,101,103,104,105,106
,108,109,110,111,113,114,115,116
,118,119,120,121,123,124,125,126
 4660 :
 4670 DEFFNequs(s$)$P%=s$:P%=P%+
LENs$:=P
 4680 DEFFNequb(B%)?P%=B%:P%=P%+
1:=P
 4690 DEFFNequw(W%)!P%=W%:P%=P%+
2:=P
 4700 DEFFNequd(D%)!P%=D%:P%=P%+
4:=P
 4710 :
 4720 DEFPROCexecute
 4730 s$="CALL scroll"+CHR$(13)
 4740 FOR L=1 TO LEN(s$)
 4750 X%=0:Y%=ASCMID$(s$,L)
 4760 A%=138:CALL osbyte
 4770 NEXT:ENDPROC
```

DISKS

INCREDIBLE PRICES ON TOP QUALITY DISKS WITH 2 FOR 1 LIFETIME WARRANTY!

3.5" DISKS & BOXES WITH LABELS

25 X MF2DD 135 TPI disks in 40 cap. lockable box	£14.95
40 X MF2DD 135 TPI disks in 80 cap. lockable box	£22.95
75 X MF2DD 135 TPI disks in 80 cap. lockable box	£33.95

BULK DISKS WITH LABELS

50 X 3.5" MF2DD 135 TPI disks with labels	£19.95
100 X 3.5" MF2DD 135 TPI disks with labels	£36.95
250 X 3.5" MF2DD 135 TPI disks with labels	£81.95
500 X 3.5" MF2DD 135 TPI disks with labels	£159.95

HIGH DENSITY DISKS

30 X 3.5" DS/HD disks in 40 cap. lockable box	£32.95
50 X 3.5" DS/HD disks in 40 cap. lockable box	£49.95

3.5" MULTI COLOURED DISKS & BOXES WITH LABELS

25 X MF2DD 135 TPI disks (5 Colours) in 40 cap. lockable box	£17.95
40 X MF2DD 135 TPI disks (5 Colours) in 80 cap. lockable box	£24.95
75 X MF2DD 135 TPI disks (5 Colours) in 80 cap. lockable box	£37.95

BULK MULTICOLOURED DISKS WITH LABELS

50 X 3.5" MF2DD 135 TPI disks (5 Colours) with labels	£24.95
100 X 3.5" MF2DD 135 TPI disks (5 Colours) with labels	£44.95
250 X 3.5" MF2DD 135 TPI disks (5 Colours) with labels	£99.95
500 X 3.5" MF2DD 135 TPI disks (5 Colours) with labels	£189.95

ACCESSORIES

Deluxe Mouse Mat	£2.95
3.5" Disk Head Cleaner	£2.50
50 x 3.5" Disk Labels	£1.50
Roll of 1000 3.5" disk labels	£7.50
Mouse Holder	£1.99

Access

Remember – all our disks are 100% certified

VISA

Send or phone your order to:

Mansfield Computers

33 Albert Street, Mansfield, Notts NG18 1EA
Tel: 0623 631202/23043 Fax: 0623 422968 or call into our shop

All prices include VAT & delivery in UK **AF1. Please quote this reference number when ordering**

LEARNING CAN BE FUN!

fun school 2
For the Under-6s
DATABASE EDUCATIONAL SOFTWARE

fun school 2
For the Over-8s
DATABASE EDUCATIONAL SOFTWARE

A computer is an ideal teaching tool for young children – if you have the right software.

Fun School 2 consists of colourful and exciting programs that have been carefully designed by a team of educationalists. The computer itself monitors the child's progress. The skill level - initially set by the parents - is automatically adjusted to suit the child's ability, so children can enjoy learning at their own pace.

With 3 age groups (under 6's, 6-8 years old and over 8's) ***Fun School 2*** is the ideal way to introduce youngsters to the joys of using a computer.

FOR A LIMITED PERIOD ONLY we are able to offer ***Fun School 2*** at substantially reduced prices

fun school 2
For 6-8 year olds
DATABASE EDUCATIONAL SOFTWARE

DATABASE
EDUCATIONAL
SOFTWARE

FOR DETAILS OF PRICES, FORMATS, AND HOW TO ORDER, TURN TO PAGE 136.

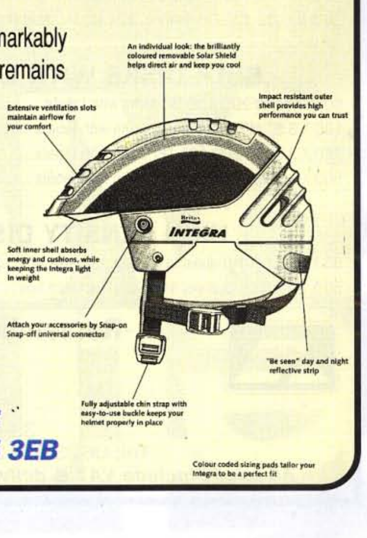
NEW

SAFE CYCLING FOR THE WHOLE FAMILY

Cycling is a pleasant, healthy, carefree sport enjoyed by millions from all age groups. However, crowded roads can bring unforeseen danger – so for you and your family's protection we have the very best in cycling helmets. *(All our headgear conforms to British Standard BS 6863.)*

● The OGK Forza hat, for adults, is a remarkably lightweight and yet fashionable hat which remains comfortable despite conforming to the strictest safety standards. Normally £38.95, this superb hat (in white only) is available for just **£29.95.**

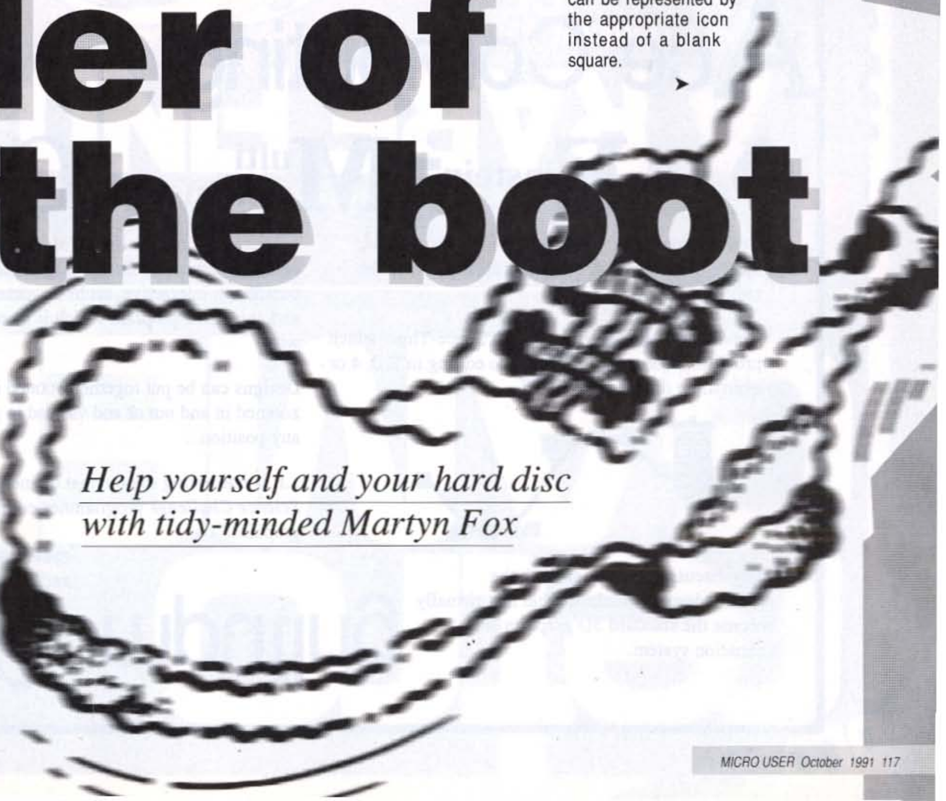
● For children, we have the Britax Integra for two age groups – 4 to 8 years old and 7 to 14. Britax are the UK's leading child safety product manufacturers. As with the adult helmet, it is lightweight and comfortable and at only **£29.95** (RRP £34.95), represents exceptional value. This helmet is only available in blue.


An individual look: the brilliantly coloured removable Solar Shield helps direct air and keep you cool
Extensive ventilation slots maintain airflow for your comfort
Impact resistant outer shell provides high performance you can trust
Britax
INTEGRA
Soft inner shell absorbs energy and cushions, while keeping the Integra light in weight
Attach your accessories by Snap-on Snap-off universal connector
"Be seen" day and night reflective strip
Fully adjustable chin strap with easy-to-use buckle keeps your helmet properly in place
Colour coded sizing pads tailor your Integra to be a perfect fit

For further details phone 051-357 1275 or write to:
Cycling Offer, Freepost, Ellesmere Port, South Wirral, L65 3EB

Order of the boot

Help yourself and your hard disc with tidy-minded Martyn Fox



KEEPING a hard disc in order isn't easy. The root directory contains, as far as possible, just the main sub-directories, with applications contained in a directory called Apps. In addition, members of the family have their own one for personal use.

All your own work, as well as word-processor and other files, are contained within your personal directory, which can be organised how you wish, without interference from anyone else – hopefully.

The problem with this arrangement is that if I access the root directory of the hard disc and proceed straight to my own directory, the machine knows nothing of the applications in the Apps directory.

It does not know, for instance, what to do with a Draw or a Pipedream file. It can only represent them by a plain white square, instead of their correct sprite, and any attempt to double-click on them would produce a No Run action for this type of file error message.

The answer to this problem is to find a way of making Risc OS aware of these applications without actually putting them in the root directory, where they could make the main subdirectories harder to find quickly.

This can be done by using an Obey file to run the !Boot files of the chosen applications. As it can take an annoying few seconds to run all the !Boot files and load all the application sprites, even with a hard disc, I prefer to use two Obey files.

One runs automatically to handle applications which I use often, and the second, which must be double-clicked on, deals with the remainder.

The first of these Obey files could be the !Boot file in the hard disc root directory, which is run either by pressing Shift+Break or automatically by setting the auto-boot option with the command:

```
*Configure Boot
```

and resetting the machine. The second Obey file could be located in the root directory.

This approach assumes that you want your first Obey file to run whenever you start up the machine, even if you do not access the hard disc. I use my !Boot file for other purposes, so I have adopted a different method.

The second approach consists of a very simple application called !BootUp, which contains only the two Obey files, named !Boot and !Run, together with an optional sprite file. This is the only application which resides in the root directory.

When the root directory viewer is opened, Risc OS sees that an application directory is present and checks to see if it contains a file called !Boot.

If it finds one, it runs it. We can therefore use !Boot, within the !Bootup application, to contain the instructions to make Risc OS aware of those applications which we use most often.

The rest are contained in the !Run file, and to start them you just double-click on the !Bootup icon.

Apart from !System, the chosen applications are those with their own file types, which might be found in other directories on the hard disc.

To produce this application, you first need to create a new directory called !Bootup, located in the root directory. This directory will be represented in the root directory window by a standard application icon, unless you give it a !Sprites file.

You will have to write your own !Boot and !Run Obey files, using !Edit, since their contents will depend on your personal preference and the way in which you organise your hard disc. My own are given here as an example:

```
|
| !Boot file for !Bootup
|
IconSprites <Obey$Dir>.!Sprites
Set Boot$dir <obey$dir>
<Boot$dir>.^.Apps.!System.!Boot
<Boot$dir>.^.Apps.!Edit.!Boot
<Boot$dir>.^.Apps.!Draw.!Boot
<Boot$dir>.^.Apps.!Paint.!Boot
<Boot$dir>.^.Apps.!Pipedream.!Boot
<Boot$dir>.^.Apps.!Impress.!Boot
```

The second line should be deleted if you do not give the application a !Sprites file. For my sprite, I drew a representation of a Wellington boot, using !Paint.

Make the sprite 34 x 17 pixels, with mask on, give it the sprite name !Bootup, and save it in the !Bootup directory with the filename !Sprites.

By using the *Boot$Dir* system variable in the pathname of each of the applications you don't have to worry what filing system you're using as this is automatically supplied.

Unfortunately *Boot$dir* also includes the !Bootup name, but by using the up arrow we can move back up to the root directory.

The most important application to boot up is, of course, !System. Some people also prefer to have !Fonts in the root directory as well, so you could add a line for this if you need to but you can use a different method, more of which later.

!Draw and !Paint are included so that all the basic file types are handled.

Less frequently used applications like !Maestro and !Formed are relegated to the !Run file, which has exactly the same structure – but without the IconSprites command – so isn't repeated here.

The thing to remember is that none of these applications is actually loaded – ram in a 1 Mbyte machine is far too precious to be cluttered up with large applications that you are not using, particularly if you are desktop publishing.

All that happens is that certain system variables are set which tell the system what to do when particular file types are double-clicked and where to find the application in question.

The necessary sprites are loaded so that these file types can be represented by the appropriate icon instead of a blank square. ➤

Using fonts

The !Fonts application occupies some 57k when it's been run, so it would be nice if programs that require fonts should load them only when needed and not before.

You might have !Fonts tucked away in a directory called Printing also contains various printer odds and ends. So add an extra line to the !Boot file of !Bootup:

```
Set Font$Patch
<Boot$dir>.^.Printing.!Fonts
```

This line creates a system variable called *Font$Patch* which can be used to tell various applications where the fonts are. It is then necessary to edit the application's !Run file. Needless to say, this should only be done on the hard disc, *not* on your master floppy or backup copy of it.

Great care is needed here. An application such as Impression may have a long and complicated !Run file which makes several references to a system variable called Obey$Dir.

This variable is automatically set each time the filing system runs an Obey file, such as a !Boot or !Run file, and it contains the pathname of the directory containing the file.

We are going to modify a !Run file so that it includes a command to run another Obey file, namely the !Boot file in !Fonts. This will change Obey$Dir as we do it, so that its contents will be different during the remainder of the !Run file.

For this reason we need to make some slight changes to the !Run file of Impression, or whatever application is going to use the fonts. Load the file into !Edit and examine it. Somewhere there will be a line such as:

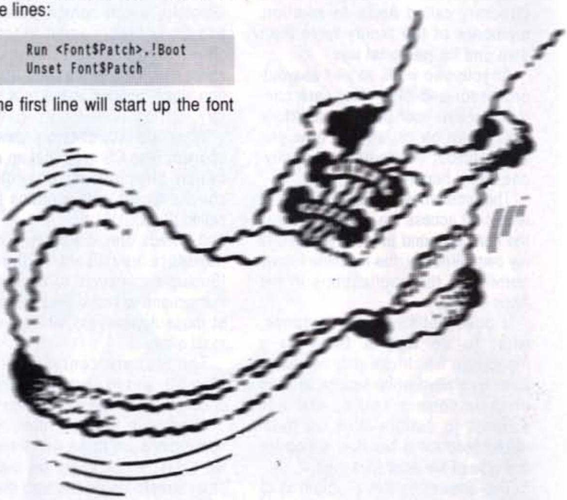
```
Set Impression$Dir <Obey$Dir>
```

Move this line to the start of the file, then check for any other lines that contain <Obey$Dir>. If you find any, replace <Obey$Dir> with <Impression$Dir>, or the variable for whatever application you are working on. It is now safe to do something that will change the contents of Obey$Dir after the first line, as it does not appear again in the !Run file after that.

After the line which you moved up to the beginning of the file, insert these lines:

```
Run <Font$Patch>.!Boot
Unset Font$Patch
```

The first line will start up the font manager and cause it to set up system variables pointing to !Fonts, and the following line will delete the variable *Font$Patch*, which is no longer needed.



Ace Computing

♠ **E**instein=**M**ulti dimensional C^2ad

Coming soon from the makers of ***Euclid, Mogul, Splice, Tween*** and ***ArcLight,*** is an addition to the range.

Einstein is a new tool for editing Space-Time, which provides a consistent approach to editing in 2, 3, 4 or even more dimensions.

"Any discussion of design with the Archimedes must include what has virtually become the standard 3D graphics and animation system.

I mean of course the *Euclid/Mogul/Splice* trio of packages from Ace Computing. *Euclid* is a Risc OS compliant, interactive, multi-document, 3D, graphics and animation program which is so easy to get to grips with.

Designs can be put together, rotated in real time, zoomed in and out of and viewed in perspective from any position...

...It is interesting to note that the next set of BBC TV's *Science Challenge* programmes employ *Euclid* graphics."

CHRIS DRAGE Education section
BBC ACORN USER February 1991

Ace Computing

Joining the chorus line

Steve Turnbull checks out the latest speech software for the 32 bit Acorn machines

Product: ARCticulate
Price: £24.95
Supplier: The Fourth Dimension,
1 Percy Street, Sheffield S3 8AU.
Tel: 0742 700661

IN the July issue we reviewed three packages that use the built-in sound system of the Archimedes and BBC A3000 to produce speech, some more comprehensible than the rest. This month we have a late addition to the race in the form of ARCticulate from The Fourth Dimension.

The package arrives in the same video-size box as 4D's games and includes a small six page manual and one disc. There's a demo, the main program – !ARCtic – an exception dictionary, module library (!Share), joke-telling DeskTop silly and a sound-on-desktop-event generator. There are also applications for four different types of voice, male, female, alien and droid.

The main program can be used to test text to be spoken. You just type in the words and the program speaks up. You can load up one or more of the voices and the selected one will enunciate the text that was typed in. The pitch and speed can be altered.

When you load up one of the voices you get a window containing the face connected to the voice. As the voice speaks, the mouth moves – it's quite effective.

All the other speech packages produce their sounds by literally synthesising the individual phonemes, but with ARCticulate the phonemes are digitised and played back in the order they are required. This has two effects, one good and two bad.

The benefit is that there's the option of different voice types, and to add more all that's required is digitising a matching set of phonemes. Particular dialects could be used.

The disadvantage is that reproduction of the phoneme sound is slightly incorrect in places, resulting in strange pronunciation of some words despite using the correct phonemes.

And there is an occasional conflict between phonemes, which can make words break strangely in the middle. Only 42 phonemes are available and these really aren't sufficient to cope with all situations.

The dictionary program allows you to edit the existing list of exceptions. This works well and is certainly easier to use than Superior Software's !Speech. However, it should be remembered that in the latter program the entirety of the pronounciation is controlled from the exception dictionary as well. The programming interface described in the manual has 12 command line instructions and a list of 11 SWIs – in fact there's another one mentioned in the next paragraph – but no description of registers is used. An experienced programmer would be able to work it out.

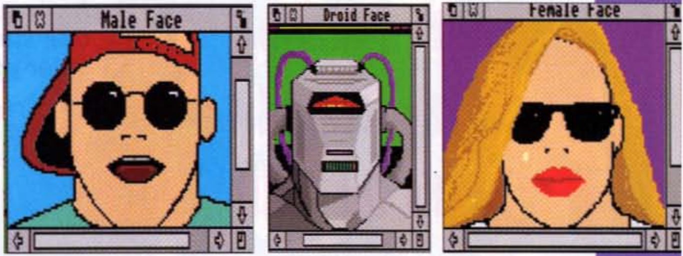
On disc the only additional documentation is a ReadMe file within the !Share directory that details how to get around the protection scheme. Another SWI needs to be issued – *Speech_Protect* – which requests the insertion of the original disc.

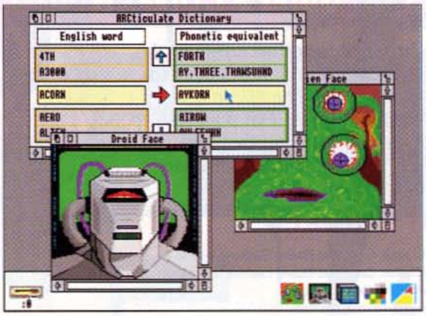
As mentioned, the sound quality has both good and bad points. The sampled phonemes sound good most of the time but lapse into complete incomprehensibility when certain combinations are used. The option of four different voices is clever and would theoretically permit further extension, but four seems to be hard-wired into the main program.

One minor niggle is that the DeskTop interface is not entirely standard. When Menu is clicked over the iconbar icon the Quit option that appears is labelled Exit and the menu doesn't appear in quite the right place. I find this aggravating, not least because it's unnecessary.

Summing up

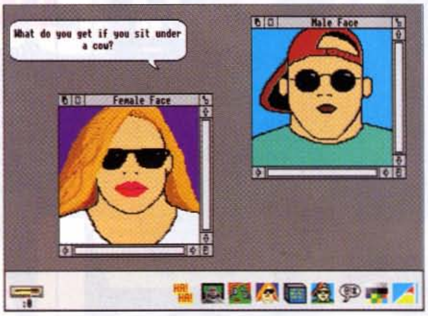
On the whole this is a good system but it fails to come up to scratch. It's certainly better than DT-Talk and SpeechSystem, but falls some way behind !Speech. The spartan documentation could certainly be improved.





English word	Phonetic equivalent
4TH	FORTH
A3000	AY.THREE.THAWSUHND
ACORN	AYKORN
AERO	AIROW

A word from a droid or an alien



What do you get if you sit under a cow?

The mouth moves to match the speed

Name	Output quality	Output controls	Rules	Exceptions	Documentation	Support software	Price
DT-Talk	Poor	None	Fixed	None	Poor	Poor	£15.00
SpeechSystem	O K	None	Fixed	Alterable	Excellent	Excellent	£25.00
Speech!	Good	Extensive	Alterable	Alterable	Poor	Good	£19.95
ARCticulate	Good	O K	Fixed	Alterable	Poor	O K	£24.95

How the products compare

FUN SCHOOL!

TAPE 5.25"DISC
£9.95 £12.95
3.5" Master £24.95

Educational Bundle

Ages 2-5	Ages 5-8	Ages 8-12
Alphabet	Balance	Anagram
Colours	Castle	Codebreaker
Counting	Derrick	Dog Duck Corn
House	Fred's Words	Guessing
Magic Garden	Hilo	Hangman
Matchmaker	Maths Test	Maths Hike
Numbers	Mouser	Nim
Pelican	Number Signs	Odd Man Out
Seaside	Seawall	Pelmanism
Snap	Super Spell	Towers of Hanoi

- **Use your BBC Micro to teach and amuse your children at the same time.**
- **Three packages crammed full of educational programs – and so easy to use!**
- **Each program has been educationally approved after extensive testing in the classroom**

NURSERY RHYMES

5 fun-packed educational programs ... for young children everywhere

This delightful collection of programs is based around children's favourite Nursery Rhymes. There's plenty of sparkling colour, sound and captivating animation to keep them riveted – and as they play they'll be learning all the way.

- ★ Tell the time with Hickory Dickory Dock.
- ★ Assemble the jigsaw in Humpty Dumpty.
- ★ Learn to spell with Jack and Jill.
- ★ Match the animals in See Saw Marjory Daw.
- ★ Play an exciting game in Hey Diddle Diddle.

It's Amazing
It's Radical
It's the Rolling Ruler

A complete drawing board in one simple unit. With a rolling ruler you can draw:

- ★ Horizontal parallel lines
- ★ Vertical parallel lines
- ★ Perfect right angles with ease
- ★ Any other angles from 1° to 359°
- ★ Clever circles

Available in two sizes 22cm (8in) and 30cm (12in) this great offer gets you both rolling rulers for just £6.50 (RRP £9.99)

It's innovative design gives the new rolling ruler the ability to draw vertical and horizontal lines without lifting it off the paper, parallel lines, angles, circles, musical staves and graphs with ease, making it ideal for the home, the office, schools, workshops and 3D design work.

NEW! TEN of the BEST! EDUCATIONAL GAMES

Packed full of some of the best educational games available for the BBC Micro, the new Ten of the Best Educational Games is the ideal way for your children to learn about maths, spelling, anagrams, telling the time, general knowledge, and even the rudiments of running a business!

Specially compiled by the *Electron* and *Micro User*, teams to give a good grounding in all aspects of learning, and at the very special price of only £5.95 on tape, or £6.95 on disc, this collection is a treat you and your children cannot afford to miss!

Give your children hours of fun, and help them to learn the easy way by ordering your copy today

Tape £5.95
Disc £6.95

THE PERFECT PAIR

The best-selling, award-winning BBC software is now joined by THE definitive guide

A Dabhand Guide
Mini Office II
DABS PRESS

The Program

Mini Office II is the highly-acclaimed suite of integrated programs which turn your computer into a versatile business machine.

It's the perfect package to increase your personal productivity – with more than 400,000 satisfied users across the complete Mini Office range.

The Book

The Dabhand Guide to Mini Office II is a brand new book to help you get the most out of the software. It not only contains the facts, but also the kinds of hints and tips that can only be built up through years of computer use.

More than a manual, the guide assumes nothing. Beginning with the first sentences typed into the editor, you are led through al aspects of using the system, up to the most advanced techniques.

All the examples are also on an accompanying disc which even includes a very useful routine to print out large spreadsheets sideways.

CLASSIC GAMES COMPENDIUM

We've brought together some of the most popular compilations ever to have appeared in *The Micro User* for this special offer. For a limited period, we are offering them on four 5.25" discs for the give-away price of £14.95!

TEN of the BEST!
Games
Dino
Hunkie Egg
Diamond Quest
Stellar Rescue
Fruit Machine
Karate Warrior
Maltese Cross
Othello
Witch Hunt
Soccer Manager

WHAT YOU GET:

- ★ 9 Classic Card and Board Games Volume 1
- ★ 9 Classic Card and Board Games Volume 2
- ★ Ten of the Best Games
- ★ Classic Arcade Games

9 Classic card & board games
9 Classic card & board games
THE MICRO USER
SPECIAL
CLASSIC ARCADE GAMES

Special Offer

SAVE £40

ACORNSOFT LANGUAGES
FORTH
for the BBC Microcomputer

Acornsoft Forth Rom

~~£49.95~~

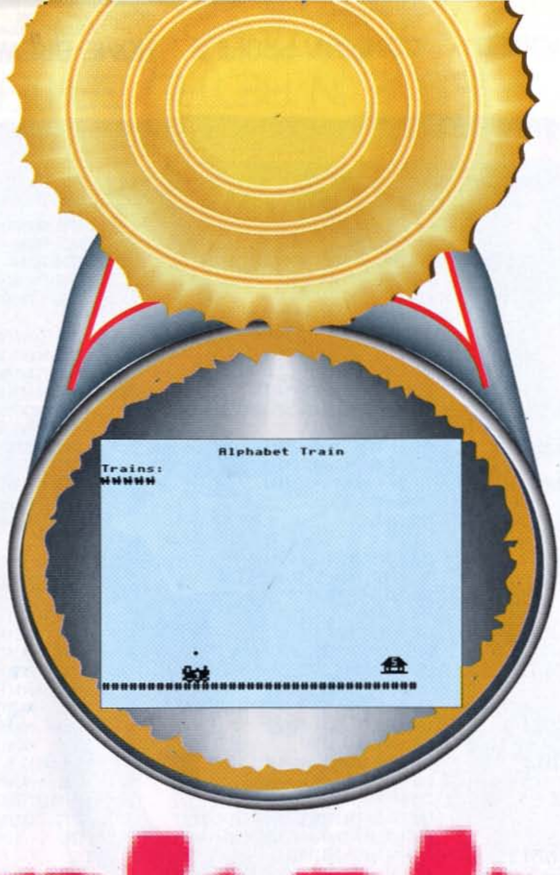
£9.95

Reduced to clear while stocks last

PLEASE USE THE ORDER FORM ON PAGE 136

Alphabet soup

Andrew Le Fevre shows how you can redirect the attention of busy young button pushers



MY young son, now aged three, has always been an avid button pusher. At an early age he learned to turn the television on, the washing machine off mid-cycle, and soon progressed to altering the timer on the video when it had been set to record his elder sister's favorite programme.

I was desperate to channel his enthusiasm for buttons in another direction and to give him a reward other than the howls of rage from his sister when she discovered that I hadn't recorded Sesame Street.

It was then that I introduced him to my BBC Micro, but he soon became bored by just typing in letters, and all the games which I had were too sophisticated.

As he could already say most of the alphabet, from having watched those episodes of Sesame Street which I had managed to record – but did not recognise all the letters – I set about writing a program which would help him to recognise both characters and numbers.

Type in the program and save it as *AlfaNum* and make sure you've made no typing errors using the checksums.

When the program is run you have the option of setting upper or lower case, number characters, or a combination of any of the above. Select the appropriate combination, press R and let your child take over.

If you have a Master or Compact you can disable the Break key by rotating the barrier next to it using a screwdriver. On a Model B, Electron or B+ you can stick a small piece of card under the Break key after removing the lid.

Although the program appears straightforward and gamelike to an adult, it contains features which are designed for maximum learning impact on the child. These are:

- A flashing character which directs attention and forms a stronge mental image as the child transfers attention from the screen to the keyboard and searches for the correct key.
- A *wrong* sound giving the child immediate feedback on an incorrect character match, but no lasting indication of the error.
- A *right* sound rewarding a correct character match, together with a permanent reward in the form of the character turning into part of the display.
- An additional goal in the form of animated action when a certain number of correct identifications have been made.

My son also likes the trains and soon discovered that he could make them move faster by holding down a key. There is a limit of about 280 correct answers before the score trains begin to encroach on the playing area, but this shouldn't be much of a problem.

Line 50 is the error handling procedure. Leave the REM in place until you're sure the rest of the program is working, then copy the line without it.

Now run the program and press Escape. If the machine hangs up completely it means there's a fault in the error line.

The program is based on a random selection of alphabet or number characters generated by PROCNOLET and PROCMENU sets up the combination of letters or numbers to be selected.

Initialisation of text strings and user defined characters used in the display screen is done by PROCINIT and PROCINIT2.

PROCANIMATE and PROCSMOKE produce train animation after correct selection of a character is detected by PROCRIGHT.

- *The program was an instant success, and by leaving the BBC Micro on with it running junior comes back time and time again during the day, totally unpressured. So far he has managed a high score of 115 trains.*

```
   10 REM > AlfaNum
   20 REM BY Andrew Le Fevre
   30 REM (c) The Micro User
   40 :
   50 REMON ERROR IF ERR=17 GOTO 240 ELS
E REPORT:PRINT" at ";ERL:END
   60 off$="Off":on$="On ":T%=0
   70 DIM opt$(3),nu(3)
   80 TI$="Alphabet Train"
   90 REPEAT
  100   MODE6:PROCMENU
  110   MODE4:PROCINIT
  120   REPEAT
  130     PROCNOLET
  140     REPEAT
  150       PROCINPUT
  160       PROCFLASH
  170       UNTIL ans$>""
  180     IF flag2 PROCFLASH
  190     IF ans$=que$ PROCRIGHT
  200     IF ans$<>que$ SOUND 1,-15,5,2
  210     IF ans>4 ans=0:PROCANIMATE:PRO
CINIT2
  220   UNTIL ans>4
  230 UNTIL FALSE
  240 MODE 6
  250 PRINTTAB(0,10)"Again? (y/n)";
  260 REPEAT I%=INSTR("YyNn",GET$)
  270 UNTIL I%>0:IF I%<3 RUN
  280 CLS:END
```

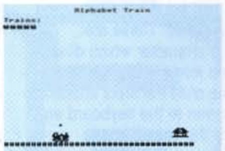
➤

➤

```
  290 :
  300 DEFPROCINIT
  310 VDU 23;8202;0;0;0;
  320 SC$="Trains: "
  330 TRK$=STRING$(5,CHR$(35))
  340 flag2=TRUE:ans$="":ans=0
  350 CLS:PRINTTAB(13,1)TI$
  360 REM STATION
  370 VDU23,250,1,3,7,15,31,63,127,255
  380 VDU23,251,255,195,223,223,195,251,
251,195
  390 VDU23,252,128,192,224,240,248,252,
254,255
  400 VDU23,253,248,248,152,152,152,248,
255,255
  410 VDU23,254,255,255,129,129,129,255,
255,255
  420 VDU23,255,31,31,25,25,25,31,255,25
5
  430 STT$=CHR$250+CHR$251+CHR$252
  440 STB$=CHR$255+CHR$254+CHR$253
  450 PRINTTAB(31,26)STT$TAB(31,27)STB$T
AB(30,29)TRK$
  460 VDU23,249,6,230,230,255,255,255,10
2,102:REM SMALL TRAIN
  470 REM SMOKE
  480 VDU 23,242,60,60,255,255,255,255,6
0,60
  490 VDU 23,242,60,60,255,255,255,255,6
0,60
  500 VDU 23,241,0,0,24,60,60,24,0,0
  510 VDU 23,240,0,0,0,24,24,0,0,0
  520 REM BIG TRAIN
  530 VDU23,243,63,63,51,243,243,243,255
,255
  540 VDU23,244,0,0,14,14,255,255,241,22
5
  550 VDU23,245,28,28,28,28,255,255,255,
255
  560 VDU23,246,255,252,252,255,195,255,
60,24
  570 VDU23,247,249,249,249,255,97,255,1
59,14
  580 VDU23,248,63,63,63,255,240,255,15,
7
  590 ENVELOPE 1,1, 0,0,0, 1,1,0, 6,-6,-
128,-128, 105,0:REM CHUFF
  600 ENVELOPE 2,1, 96,0,0, 100,100,100,
127,-2,-1,-1, 126,0:REM BUILD TRACK
  610 PROCINIT2:ENDPROC
  620 :
  630 DEFPROCINPUT:*FX21
  640 ans$=INKEY$(50):ENDPROC
  650 :
  660 DEFPROCNOLET
  670 LOCAL N%,C%:N%=RND(3)
  680 REPEAT N%=N%MOD3+1:UNTIL opt$(N%)=
on$
  690 IF N%=1 C%=RND(25)+65
  700 IF N%=2 C%=RND(25)+97
  710 IF N%=3 C%=RND(9)+48
  720 que$=CHR$(C%)
  730 ENDPROC
  740 :
  750 DEFPROCRIGHT:ans=ans+1
  760 VDU31,2+ans*5,15,32
  770 FOR M=15 TO 28
  780   SOUND 17,-12,1,1
  790   VDU127,10,ASCque$
  800   PS$=INKEY$10:NEXT
  810 SOUND 18,2,1,25:TRAK$=TRAK$+TRK$:P
RINTTAB(0,29)TRAK$
  820 MOVE T%MOD32*40,880-(T%DIV32*40)
  830 VDU5,249,4:T%=T%+1
  840 PS$=INKEY$(100)
  850 PROCSMOKE(0):ENDPROC
  860 :
  870 DEFPROCINIT2:X=0:SP$=""
  880 TRAK$=TRK$:PRINTTAB(0,29)TRAK$
  890 TRAINT$=CHR$(243)+CHR$(244)+CHR$(2
45):PRINTTAB(0,27)TRAINT$
  900 TRAINB$=CHR$(248)+CHR$(247)+CHR$(2
46):PRINTTAB(0,28)TRAINB$
  910 PRINTTAB(0,3)SC$:ENDPROC
  920 :
  930 DEFPROCSMOKE(L%)
  940 LOCAL M%:SOUND16,1,4,5
  950 FOR M%=26 TO 24 STEP -1
  960   VDU31,M%-24+L%,M%,M%-24+240
  970   PS$=INKEY$(20-INT(L%/1.5))
  980   VDU127:NEXT
  990 ENDPROC
 1000 :
 1010 DEFPROCANIMATE
 1020 SOUND 18,-12,150,8:REM BELL
 1030 TLT$=" "+TRAINT$:TLB$=" "+TRAINB$
 1040 FOR L%=0 TO 26
 1050   PRINTTAB(L%,27)TLT$TAB(L%,28)TLB
$
 1060   PROCSMOKE(L%+1):NEXT
 1070 SOUND 18,-12,150,8:REM BELL
 1080 PS$=INKEY$(200)
 1090 PRINTTAB(0,27)SPC(30)
 1100 PRINTTAB(0,28)SPC(30)
 1110 PRINTTAB(0,29)SPC(30)
 1120 ENDPROC
 1130 :
 1140 DEFPROCFLASH:VDU31,7+ans*5,15
 1150 IF flag2 VDU32 ELSE VDUASCque$
 1160 flag2=NOT flag2:ENDPROC
 1170 :
 1180 DEFPROCMENU
 1190 opt$(1)=on$:opt$(2)=off$:opt$(3)=o
ff$
 1200 REPEAT
 1210   PRINTTAB(12,2)TI$
 1220   PRINTTAB(0,6)"Choose:"
 1230   PRINTTAB(5,8)"U - Upper Case Alp
habet",opt$(1)
 1240   PRINTTAB(5,10)"L - Lower Case Al
phabet",opt$(2)
 1250   PRINTTAB(5,12)"N - Numbers"SPC(1
2),opt$(3)
 1260   PRINTTAB(5,16)"R - Run The Progr
am":PRINTTAB(7,6);
 1270   REPEAT
 1280     I%=(INSTR("UuLlNnRr",GET$)+1)/
2
 1290     UNTIL I%>0
 1300   IF I%<4 opt$(I%)=FNFLIP(opt$(I%)
)
 1310   IF opt$(1)=off$ IF opt$(2)=off$
IF opt$(3)=off$ opt$(1)=on$
 1320   UNTIL I%=4
 1330 ENDPROC
 1340 :
 1350 DEFFNFLIP(opt$)IF opt$=on$ THEN =o
ff$ ELSE =on$
```

Get it right ✓

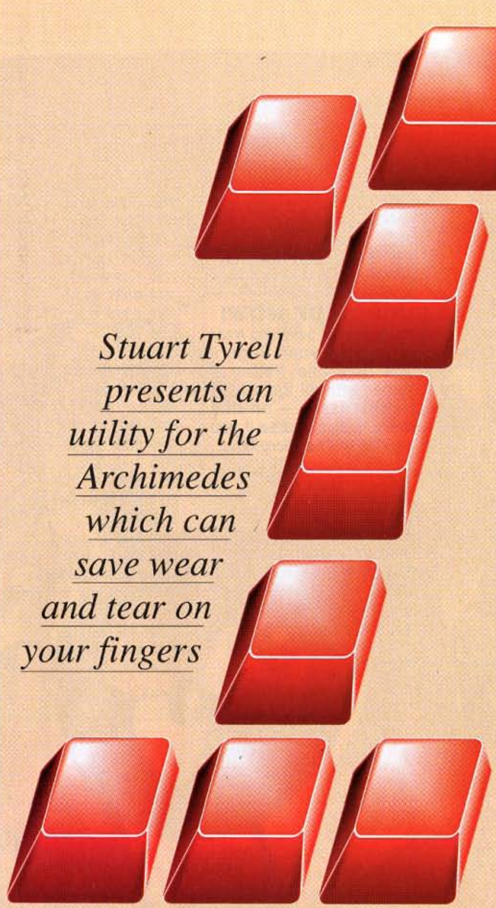
```
  10 =    0 0
  20 =    0 0
  30 =    0 0
  40 = 9719 9
  50 =    0 9
  60 = 7400 0
  70 = 8912 E
  80 = 4378 0
  90 = BFBA E
 100 =  9B1 0
 110 = DAE4 D
 120 = BFBA 3
 130 = FECA A
 140 = BFBA 1
 150 = DADB 9
 160 = 5F02 C
 170 = 5119 1
 180 = 8C8A 8
 190 = A304 5
 200 = 8A7F 2
 210 = 9372 5
 220 = 698A 0
 230 = 226C 4
 240 =   B3 2
 250 = 5DEA 1
 260 = A5BC 1
 270 = 1BAD A
 280 = 8215 4
 290 = 9719 B
 300 = A740 E
 310 = 6D88 5
 320 = 1936 6
 330 = AAFD 7
 340 = EF11 D
 350 = 2AF7 8
 360 =    0 8
 370 =  BB9 5
 380 = BE9D E
 390 = 564A D
 400 = 2A47 6
 410 = D72B 8
 420 = F491 0
 430 = 1F0B C
 440 = B968 7
 450 = 5AC8 9
 460 = 4881 9
 470 =    0 9
 480 = D67E 3
 490 = D67E 3
 500 = AB2B F
 510 =  53A 9
 520 =    0 9
 530 = ACEE 5
 540 = 2894 1
 550 = B2CD 8
 560 = 4B0D A
 570 = 60C9 2
 580 = 807A 8
 590 = F1C3 3
 600 = C399 2
 610 = 74F2 0
 620 = 9719 1
 630 = 5780 5
 640 = 1424 9
 650 = 9719 A
 660 = 55AE E
 670 = 2354 D
 680 = 4E8F F
 690 = E5E2 0
 700 = 1A3B A
 710 = BFB2 C
 720 = D246 A
 730 = ED0F 8
 740 = 9719 D
 750 = 56C3 1
 760 = 4E21 3
 770 = 940D 7
 780 = 431A F
 790 = 1581 5
 800 = D32B 5
 810 = 63E6 8
 820 = 8A50 C
 830 = 8958 E
 840 = 1B7D 9
 850 = 6D94 5
 860 = 9719 F
 870 = 75BF 5
 880 = 3208 1
 890 = DE46 F
 900 = E714 E
 910 = AB4B 4
 920 = 9719 6
 930 = 8DBB 1
 940 =  945 8
 950 = 71FC 5
 960 = 112B C
 970 = 11B1 4
 980 = AFED 8
 990 = ED0F 7
1000 = 9719 F
1010 = BE3A 5
1020 = 89B6 C
1030 = 6D0D 2
1040 = ACE4 F
1050 = 111B 9
1060 =  87E 4
1070 = 89B6 4
1080 = 80A1 4
1090 = F9D7 0
1100 = 733E 7
1110 = CB5F B
1120 = ED0F 6
1130 = 9719 1
1140 = 10EE E
1150 = CEE6 C
1160 = B5F8 0
1170 = 9719 8
1180 = 14F6 2
1190 = D8B2 5
1200 = BFBA B
1210 = DFB8 8
1220 = C6E5 B
1230 = 14F0 D
1240 = 5F28 8
1250 = F3DA E
1260 = 3F50 5
1270 = BFBA 7
1280 = 5B8C B
1290 = 375F D
1300 = 9A67 2
1310 = 8A25 6
1320 = 2288 A
1330 = ED0F C
1340 = 9719 3
1350 = FDC4 4
```



Alphabet Train

Trains:

Key to faster typing



Stuart Tyrell presents an utility for the Archimedes which can save wear and tear on your fingers

A FEATURE common to many of the earlier home computers was the facility for single key entry, which allowed you to enter commands from the keyboard by pressing a few keys simultaneously rather than having to type them out in full.

Although single key entry is an infrequent addition to more recent computers, it may still be useful, so this program allows the Archimedes owner to benefit from the reduced finger wear which single key entry gives.

Type the listing in, ensuring that it is correct using the checksums, save it and enter RUN.

The program saves a module called KeyMod. To use it enter *KeyMod or double-click on its icon from DeskTop and the program will display a message to show that it has loaded.

Hold down Crtl+Alt and press the key correspinding to the word in Figure I which you want to be entered.

The program as listed makes the keys produce the same words as they do on the Electron. To change which words are associated with which key, just alter the DATA statements at the end of the program, re-run the program, and re-load the module. The format of the DATA statements is:

```
DATA (negative inkey number), (word),
```

... and so on. Here the *negative inkey number* determines which key will generate this particular keyboard short-cut when pressed.

A list of the number associated with each key can be found in the Basic manual.

The *word* is the one that you wish to be inserted when the above key is pressed. The words are treated very much like definitions for the function keys, so *RUN|M* is the same as typing RUN and then pressing Return.

The end of the list of DATA statements must end with the line:

```
DATA 0,0
```

The utility will also work in the desktop, so if, as one of the DATA statements, you add :

```
DATA -49,"Dear Sir,"
```

pressing Ctrl+Alt+1 will enter *Dear Sir* into your letter if you are using !Edit in the DeskTop.

Finally, enter :

```
*KeyWords OFF
```

to turn off the utility, and :

```
*KeyWords ON
```

to turn it back on again.

```
   10 REM >ARCKeySRC
   20 REM by Stuart Tyrrell
   30 REM (c) The Micro User
   40 MODE0
   50 PROCmc
   60 PROCsave
   70 END
   80 :
   90 DEFPROCmc
  100 DIM MC% &8000
  110 Help$="KeyWordKeys"+CHR$9+
"1.00 ("+MID$(TIME$,5,11)+")"
  120 FOR pass=4 TO 6 STEP 2
  130 P%=0:O%=MC%
  140 [OPT pass
  150    DCD 0
  160    DCD init
  170    DCD final
  180    DCD service
  190    DCD title
  200    DCD help
  210    DCD command
  220 .title
  230    FNs("KeyWordKeys")
  240 .help
  250    FNs(Help$)
  260 .command
  270    FNs("KeyWords")
  280    DCD keyentry
  290    DCD &10101
  300    DCD syntax
  310    DCD keyhelp
  320    FNs("KeyWordAuthor")
  330    DCD 0
  340    DCD 0
  350    DCD 0
  360    DCD authorhelp
  370    DCB 0
  380 .syntax
  390    FNs("Syntax: *KeyWords
<ON|OFF>")
  400 .keyhelp
  410    FNs("*KeyWords <ON|OFF>
 turns the KeyWord Keys on or of
f. When on, pressing Ctrl-Alt an
d a key produces a keyword.")
  420 .authorhelp
  430    FNs("KeyWordKeys was wr
itten by S.Tyrrell for The Micro
 User.")
  440 .keyentry
  450    STMFD R13!,{R0-R12,R14}
  460    LDRB R1,[R0]
  470    LDRB R2,[R0,#1]
  480    LDRB R3,[R0,#2]
  490    LDRB R4,[R0,#3]
  500    AND R1,R1,#&5F
  510    AND R2,R2,#&5F
  520    AND R3,R3,#&5F
  530    AND R4,R4,#&5F
  540    CMP R1,#ASC("O")
  550    BNE notonoroff
  560    CMP R2,#ASC("N")
  570    BEQ on
  580    CMP R2,#ASC("F")
  590    BNE notonoroff
  600    CMP R3,#ASC("F")
  610    BEQ off
  620 .notonoroff
  630    ADR R0,noterror
  640    SWI "OS_GenerateError"
  650    LDMFD R13!,{R0-R12,PC}
  660 .noterror
  670    DCD 0
  680    FNs("*KeyWords must be
followed by either ON or OFF")
  690 .on
  700    CMP R3,#32
  710    BGT notonoroff
  720 .initon
  730    SWI "OS_WriteS"
  740    FNs("KeyWord Keys on (c
) The Micro User")
  750    SWI "OS_NewLine"
  760    SWI "OS_NewLine"
  770    MOV R0,#255
  780    STR R0,onoffflag
  790    LDMFD R13!,{R0-R12,PC}
  800 .off
  810    CMP R4,#32
  820    BGT notonoroff
  830    SWI "OS_WriteS"
  840    FNs("KeyWord Keys off")
  850    SWI "OS_NewLine"
  860    SWI "OS_NewLine"
  870    MOV R0,#0
  880    STR R0,onoffflag
  890    LDMFD R13!,{R0-R12,PC}
  900 .init
  910    STMFD R13!,{R0-R12,R14}
  920    MOV R0,#&1C
  930    ADR R1,called
  940    MOV R2,#0
  950    SWI "OS_Claim"
  960    B initon
  970 .final
  980    STMFD R13!,{R0-R12,R14}
  990    MOV R0,#&1C
 1000    ADR R1,called
 1010    MOV R2,#0
 1020    SWI "OS_Release"
 1030    LDMFD R13!,{R0-R12,PC}
 1040 .service
 1050    STMFD R13!,{R0-R12,R14}
 1060    CMP R1,#&27
 1070    BLEQ init
 1080    LDMFD R13!,{R0-R12,PC}
 1090 .called
 1100    STMFD R13!,{R0-R12,R14}
 1110    LDR R0,onoffflag
 1120    CMP R0,#0
 1130    BEQ calledexit
 1140    MOV R0,#129
 1150    MOV R1,#&FE
 1160    MOV R2,#&FF
 1170    FNuseswi
 1180    SWI "OS_Byte"
 1190    FNoutswi
```

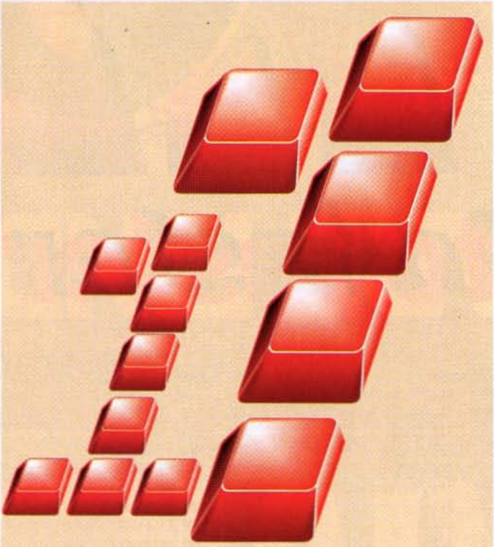
➤

➤

```
1200    CMP R1,#0
1210    BEQ notkeys
1220    MOV R0,#129
1230    MOV R1,#&FD
1240    MOV R2,#&FF
1250    FNuseswi
1260    SWI "OS_Byte"
1270    FNoutswi
1280    CMP R1,#0
1290    BEQ notkeys
1300    :
1310    MOV R0,#122
1320    FNuseswi
1330    SWI "OS_Byte"
1340    FNoutswi
1350    EOR R7,R1,#&FF
1360    ADR R5,datastart
1370    LDR R6,datalength
1380    ADD R6,R5,R6
1390    .searchdataloop
1400    LDR R1,[R5]
1410    AND R1,R1,#&FF
1420    CMP R1,R7
1430    BNE notpressed
1440    LDR R0,onepressedlast
1450    CMP R0,#0
1460    BNE calledexit
1470      MOV R0,#1
1480      STR R0,onepressedlast
1490      ADD R7,R5,#8
1500      .outputloop
1510      MOV R0,#138
1520      MOV R1,#0
1530      LDRB R2,[R7],#1
1540      CMP R2,#0
1550      BEQ calledexit
1560      CMP R2,#ASC("|")
1570      BNE notcontrol
1580      LDRB R2,[R7],#1
1590      CMP R2,#ASC("|")
1600      SUBNE R2,R2,#64
1610      CMP R2,#0
1620      MOVLT R2,#ASC("|")
1630      .notcontrol
1640      FNuseswi
1650      SWI "OS_Byte"
1660      FNoutswi
1670      B outputloop
1680 .notpressed
1690      LDR R1,[R5,#4]
1700      ADD R5,R5,R1
1710      CMP R5,R6
1720      BLT searchdataloop
1730 .notkeys
1740      MOV R0,#0
1750      STR R0,onepressedlast
1760 .calledexit
1770     LDMFD R13!,{R0-R12,PC}
1780 .onoffflag
1790     DCD 0
1800 .onepressedlast
1810     DCD 0
1820 .datalength DCD dataend-da
tastart
```

SUBSCRIBE NOW!
If you prefer to save the wear and tear on your fingers you'll find this listing – together with all the others from this issue – on this month's disc, sent free if you subscribe to *The Micro User.*

```
1830 .datastart
1840     FNmakedata
1850 .dataend
1860 ]:NEXT pass
1870 ENDPROC
1880 :
1890 DEFFNs(Text$)
1900 [OPT pass
1910 EQUS Text$
1920 DCB 0
1930 ALIGN
1940 ]:=0
1950 :
1960 DEFFNuseswi
1970 [OPT pass
1980 MOV R9,PC
1990 ORR R8,R9,#3
2000 TEQP R8,#0
2010 MOVNV R0,R0
2020 STMFD R13!,{R14}
2030 ]:=0
2040 :
2050 DEFFNoutswi
2060 [OPT pass
2070 LDMFD R13!,{R14}
2080 TEQP R9,#0
2090 MOVNV R0,R0
2100 ]:=0
2110 :
2120 DEFFNmakedata
2130 RESTORE
2140 READ n%,text$
2150 WHILE n%<>0
2160 q%=LEN(text$)+1
2170 IF q% MOD 4>0 q%=q%+(4-q%
MOD 4)
2180 [OPT pass
2190 DCD n%
2200 DCD q%+8
 2210 FNs(text$)
 2220 ]
 2230 READ n%,text$
 2240 ENDWHILE
 2250 =0
 2260 :
 2270 DEFPROCsave
 2280 SYS "OS_File",10,"KeyMod",
&FFA,,MC%,O%
 2290 PRINT'"Module Saved as ""K
eyMod"""
 2300 ENDPROC
 2310 :
 2320 DATA -17,LOCAL,-34,RESTORE
,-35,ELSE,-52,RUN|M,-36,THEN,-69
,REPEAT
 2330 DATA -54,UNTIL,-38,INPUT,-
55,OLD|M,-56,PLOT,-66,AUTO,-82,S
TEP
 2340 DATA -51,DRAW,-68,FOR,-84,
GOTO,-85,DEG,-70,RAD,-71,CHAIN,-
87,LIST
 2350 DATA -98,END,-67,PROC,-83,
COLOUR,-100,VDU,-101,RENUMBER,-8
6,NEXT
 2360 DATA -102,MODE,-103,LOAD,-
104,SAVE,-105,PRINT
 2370 DATA 0,0
```



Get it right ✓

```
  10 =    0 0
  20 =    0 0
  30 =    0 0
  40 = FA1B B
  50 = AC81 B
  60 = 90DB D
  70 = FD2E 7
  80 = 9719 3
  90 = 3D04 6
 100 = 755B E
 110 = 12D5 1
 120 = A1D2 0
 130 = 4E80 9
 140 = 4E48 B
 150 = 9CF6 3
 160 = 3DB8 3
 170 = BF16 3
 180 = 758A 0
 190 = 9C18 3
 200 =  48C 9
 210 = 6F34 4
 220 = FD02 B
 230 = 1C43 D
 240 = 5B46 1
 250 = EDDB F
 260 = E454 D
 270 = FE77 2
 280 = 4CF2 B
 290 = D934 1
 300 = 3CBB 7
 310 = A395 A
 320 = 12B2 F
 330 = 9CF6 1
 340 = 9CF6 0
 350 = 9CF6 D
 360 =  156 1
 370 = 2E56 2
 380 = 5A3C 1
 390 = 347D F
 400 = 28F5 4
 410 = 24BF 0
 420 = C1D7 C
 430 = 7015 3
 440 =  C11 A
 450 =  5F9 8
 460 = B2FE 7
 470 = DBBE C
 480 = 65CE 5
 490 = E754 9
 500 = 6472 2
 510 = 87D6 D
 520 = 2955 B
 530 = 50BF 8
 540 = 3EB7 6
 550 = F832 1
 560 = 24C3 9
 570 = C05A A
 580 = 8D62 C
 590 = F832 6
 600 = 6641 1
 610 =  685 9
 620 = 7B35 2
 630 = FB99 4
 640 = 2E0B D
 650 =  C39 F
 660 = DBD3 5
 670 = 9CF6 D
 680 = 3F5F B
 690 =  BBB E
 700 = 9F78 D
 710 = 822E 7
 720 = A5E1 9
 730 = 567A 7
 740 = 2FD1 D
 750 = C6E8 D
 760 = C6E8 9
 770 = DB9F E
 780 = BBE2 B
 790 =  C39 B
 800 = 8FA2 D
 810 = F8AC 1
 820 = 822E 4
 830 = 567A 2
 840 = DDFF 8
 850 = C6E8 9
 860 = C6E8 3
 870 = BB5B 8
 880 = BBE2 1
 890 =  C39 8
 900 = 6272 9
 910 =  5F9 5
 920 = 96A9 D
 930 = B2C1 6
 940 = 5633 8
 950 = AFC8 6
 960 = EE1F B
 970 = DE0C E
 980 =  5F9 0
 990 = 96A9 4
1000 = B2C1 1
1010 = 5633 D
1020 = 17F4 9
1030 =  C39 A
1040 = FEEA E
1050 =  5F9 F
1060 = 6F31 1
1070 = 427C 4
1080 =  C39 D
1090 = 5E1C 9
1100 =  5F9 E
1110 = AF78 4
1120 = E6AF 3
1130 = 8780 D
1140 = DAD4 C
1150 = 2201 6
1160 = DC82 C
1170 = F98E 3
1180 = BF50 4
1190 = C59E 6
1200 = 901B 4
1210 = 8C0A 0
1220 = DAD4 2
1230 = 3220 6
1240 = DC82 3
1250 = F98E A
1260 = BF50 0
1270 = C59E B
1280 = 901B B
1290 = 8C0A 1
1300 = 9719 7
1310 = 6BBF E
1320 = F98E 1
1330 = BF50 5
1340 = C59E 7
1350 = 651A 2
1360 = 9188 F
1370 = 2A22 5
1380 = 3D07 A
1390 = 9BF9 D
1400 = 906E F
1410 = 3978 4
1420 = DB94 9
1430 = 27CE F
1440 = 5491 3
1450 = E6AF C
1460 = 79FB 7
1470 = AB7A E
1480 = 77F9 6
1490 = 5FC0 7
1500 = 5595 5
1510 = F9C4 F
1520 = CDEF E
1530 = 6CA1 5
1540 =  BC7 5
1550 = 8780 F
1560 = 8F06 C
1570 = 78D1 5
1580 = 6CA1 0
1590 = 8F06 8
1600 = F72C D
1610 =  BC7 1
1620 = 4702 0
1630 = FBD6 C
1640 = F98E 9
1650 = BF50 9
1660 = C59E A
1670 = DD45 4
1680 = A4C9 E
1690 = F942 6
1700 = 9562 8
1710 =  144 9
1720 = F267 0
1730 = A113 1
1740 = BB5B 2
1750 = 77F9 3
1760 = FAFC 9
1770 =  C39 D
1780 = F869 B
1790 = 9CF6 9
1800 = 4B64 A
1810 = 9CF6 7
1820 = 8458 B
1830 = 76E4 2
1840 = 7555 E
1850 = 4267 A
1860 =  7DC 3
1870 = ED0F 7
1880 = 9719 8
1890 = 7BA9 F
1900 = 4E48 D
1910 = 7BD8 6
1920 = 2E56 3
1930 = 24FA 9
1940 =  B43 1
1950 = 9719 D
1960 = 990F 7
1970 = 4E48 C
1980 = 5BD2 3
1990 = DF13 8
2000 = 5E5E 9
2010 = DB5B C
2020 = ED3D D
2030 =  B43 0
2040 = 9719 F
2050 = A51F C
2060 = 4E48 6
2070 = F9A7 6
2080 = 28EA 6
2090 = DB5B 8
2100 =  B43 A
2110 = 9719 A
2120 = FFD6 C
2130 = 9FF8 A
2140 = B750 C
2150 = 38D4 0
2160 = 5699 1
2170 = 68DF 4
2180 = 4E48 B
2190 = ED42 0
2200 = AC66 4
2210 = C422 B
2220 = 8B58 8
2230 = B750 0
2240 = 3882 7
2250 = 459A 3
2260 = 9719 D
2270 = 7A2C 9
2280 = 9B91 D
2290 = 1EA2 E
2300 = ED0F 2
2310 = 9719 5
2320 = 10AE 0
2330 = 6CB4 F
2340 = DFAE 7
2350 = 9D9E C
2360 = A4FF 5
2370 = 3BFA 2
```

BBC

ACORNUSER SHOW '91

* THE SHOW *

*A unique Show dedicated to the world of Acorn and BBC computers with both existing and potential users in mind.

*A Show which brings together the best and latest in the Acorn market ranging from the widely used and much loved 8-bit computers right through to the up-to-the-minute 32-bit machines.

*A Show fully supported by Acorn Computers themselves who will be sponsoring many of the technical and informative activities.

*A Show presented in association with BBC Acorn User Magazine, a long established and respected publication, well informed on BBC and Acorn computer matters.

*A Show designed to entertain as well as provide opportunities for purchasing a wide variety of hardware and software, often at special Show prices.

* A Show NOT to be missed!! *

* THE FEATURES *

*Fantastic Theatre providing on-going product information, computing techniques and tips, entertainment, competition prizes, celebrity spots and much more, all with a light hearted flavour.

*Personal appearance by CAROL VORDERMAN all day Saturday and LINFORD CHRISTIE and friends on other days subject to sporting activities.

*Computer problem "Clinics".

*Fabulous Games Arcade and High Score competitions. (Try the VERY LATEST games for the Archimedes).

*BBC Acorn User Magazine "Editor's Office".

*Schools Projects including in-house production of the unique BBC Acorn Show newsletter.

*Club Corner.

*Mock Classroom with Schools' activities.

*Rest-Your-Legs lounge area.

*Competitions.

*FREE Show Guide with all adult tickets.

MUCH, MUCH MORE

* THE EXHIBITORS *

*Exhibitors represent many of the leading companies in the Acorn world. You will find;

*Software houses and distributors with programs covering the range from games right through to sophisticated desk-top publishing or image processing.

*Acorn appointed dealers with their own special offers and deals, and some from Acorn Computers themselves.

*Special peripheral manufacturers and distributors.

*Publishers and Clubs.

*Consumables and Accessories.

MANY MORE

* THE VENUE *

There are fewer places in the nation better known than Wembley. Renowned for its Stadium, Event, Exhibition and Conference facilities, the BBC Acorn User Show '91 will provide both visitors and Exhibitors alike with a first class venue.

Excellent Rail, Road and Air links make it easy for visitors to reach Wembley. Massive on-site parking (NCP) is available for those travelling by car and a free shuttle bus will operate from Wembley Park Underground Station.

A variety of snack bars and restaurants will provide light refreshments throughout the open days.

* THE CONCERT *

A FABULOUS 60's CONCERT will take place in the Grand Hall of the Conference Centre on Friday evening (11th October 1991) with legendary groups HERMAN'S HERMITS, and THE BRUVVERS with the great MIKE BERRY.

Bring back the memories, sing along with your old favourites and generally let your hair down. See the Exhibition during the day and stay on for the Concert in the evening. DON'T MISS THE FUN!

Why not see the Concert and stay in London overnight and visit the Exhibition on Saturday. A great way to enjoy a trip to the Big City.

Concert tickets are all one price at a modest £10.50 each and are available from the Wembley Box Office - Tel. 081 900 1234.

* TIMES AND PRICES *

Tickets at Door;

Adult	£6.00
Under 16	£4.00
Family (2 Adults & 2 Children)	£16.00
Under 5's	FREE

Advance Tickets - use coupon below

FRIDAY 11th October 1991	- 10.00 a.m. - 6.00 p.m.
SATURDAY 12th October 1991	- 10.00 a.m. - 6.00 p.m.
SUNDAY 13th October 1991	- 10.00 a.m. - 5.00 p.m.

Please note - Pushchairs are not allowed in the Exhibition Halls.

ADVANCE TICKET APPLICATION FOR THE BBC ACORN USER SHOW

Please Rush me;
.... Adult Tickets at £5.00 Advance Discount Rate
.... Under 16 Tickets at £3.00 Advance Discount Rate
.... Family Tickets at £13.00 Advance Discount Rate

I enclose Cheque/Postal Order for £................ made out to SAFESELL EXHIBITIONS LTD

NAME ....

ADDRESS ....

.... POSTCODE ....

RETURN THIS FORM TO SAFESELL EXHIBITIONS LTD, MARKET HOUSE, CROSS ROAD, TADWORTH, SURREY, KT20 5SR TEL. 0737 814084

WEMBLEY
CONFERENCE AND
EXHIBITION CENTRE

THE CHOICE IS

Choose from these three GREAT offers

OPTION A

THE MICRO USER
How to get more from your micro
PRESENTATION

TWO ISSUES FREE!

(AND A FREE BINDER)

For the price of a 12 month subscription, you can now get an extra two copies absolutely free, plus a handsome binder to store them in.

Don't forget that you will also now receive 14 discs or tapes instead of 12!

OPTION B

MiG-29
FULCRUM
DOMARK

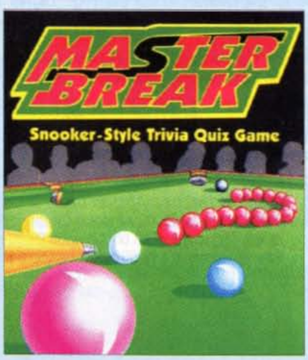
Archimedes A3000 Only

SAVE £20!

This great game from DOMARK offers you the thrill of flying the finest fighter in the world. Included are actual instruments on screen, and unique missions featuring real world scenarios. PLUS a superb 128 page full colour manual, a giant poster and full instructions.

Normally £39.99, you can get this great package for just £19.99 if ordered with your subscription.

OPTION C


MASTER BREAK
Snooker-Style Trivia Quiz Game

ABSOLUTELY FREE!

Masterbreak is a snooker-style quiz for 1 to 4 players, with over 1,000 questions on SCIENCE AND NATURE, POP MUSIC, GEOGRAPHY, SPORTS, ARTS and HISTORY.

Amusing and educational, this package normally retails for over £10. You can get it ABSOLUTELY FREE when you subscribe.

A DISC OR TAPE EVERY MONTH! ORDER NOW

YOURS! ...when you subscribe to THE MICRO USER

THE benefits of subscribing to *The Micro User* are not hard to find. Every month you will receive the very best in how-to-do-it programming articles, hard-hitting reviews, ready-to-run utilities and exclusive games.

AND, as a subscriber, you will receive each month a disc or tape containing ALL the programs listed in the magazine – plus occasional extras ONLY available to subscribers.

NOT only do you get all this, but you will also save time, trouble and get your copy delivered every month for no extra cost.

DON'T MISS OUT – SUBSCRIBE TODAY!

THE MICRO USER 12-MONTH SUBSCRIPTION ORDER FORM

	Tape	5.25 40T	5.25 80T	3.5" *ADFS	3.5" Arch/ A3000
New subscription – UK	☐ 2411 £29	☐ 2413 £32	☐ 2415 £32	☐ 2417 £35	☐ 2419 £35
Renewal subscription – UK	☐ 2412 £29	☐ 2414 £32	☐ 2416 £32	☐ 2418 £35	☐ 2420 £35
New subscription – Europe/Eire	N/A	☐ 2504 £45	☐ 2505 £45	☐ 2506 £49	☐ 2507 £49
Renewal subscription – Europe/Eire	N/A	☐ 2508 £45	☐ 2509 £45	☐ 2510 £49	☐ 2511 £49
New subscription – Overseas	N/A	☐ 2496 £65	☐ 2497 £65	☐ 2498 £69	☐ 2499 £69
Renewal Subscription – Overseas	N/A	☐ 2500 £65	☐ 2501 £65	☐ 2502 £69	☐ 2503 £69

*Suitable for Master Compact and Electrons with E00 ADFS

Order at ANY time of the day or night

Don't forget to give your name, address and credit card number

By phone: **051-357 1275**

By fax: **051-357 2813**

General Enquiries: **051-357 2961**

I wish to take out or renew my subscription to *The Micro User*, and have ticked the disc/tape format box on the left. I would also like to receive ((tick ONE box only):

☐ 14 months for the price of 12 (plus FREE binder) *2584* *2571*

☐ *2574* MiG-29 (Archimedes/A3000) – extra £19.99 enclosed

☐ Master Break – FREE

My machine is: ☐ Electron *2580* ☐ BBC B5¼" *2581* ☐ ADFS 3½" *2582* ☐ Archimedes/A3000 *2583*

I wish to pay by:

☐ Cheque/Eurocheque made payable to Europress Publications Ltd
All cheques to be in UK Sterling and drawn on a UK bank

☐ Access/Mastercard/Eurocard/Barclaycard/Visa/Connect

Expiry Date ☐ / ☐

Name ______________________ Signed ______________________

Address ______________________

____

____

______________________ Post Code ______________________

Daytime phone number in case of queries ______________________

Send to: Europress Direct, FREEPOST, Ellesmere Port, South Wirral L65 3EB *(No stamp needed if posted in UK)*

MU10

Has upgrading your BBC Micro given you hardware you no longer need? Or have changing interests left you with unwanted software?

MICRO USER CLASSIFIEDS

- BBC B series 7 with ROM board £200, Philips monitor unused boxed £40.Tel: 0484 642883.
- Loadsa books on BBC. Assembler, disks ROMS exmon, discdoc, wwise, etc SAE for list. Tel: John 0522 750846.
- BBC B with BBC tape recorder some games £120 Tel: 0865 391347.
- BBC B; 8271 DFS; Cumana CS400 40/80t DS disk drive with PSU; Star gemmini 10-X printer; joysticks; Morley Teletex adaptor; manuals; leads; games; diskbox; £200 Tel: Medway (0634) 669139 (evenings).
- C package for BBC B: Beebug C, manuals, plus K&R C language manual. All as new. £55.Tel: 0342 716697.
- BBC B with plinth, 40/80 track disc drive, shadow RAM, ROM card, inter-word and spellmaster, printer, Morley Teletex adaptor, manuals and games £350 ono Tel: 0795 534348.
- 30 MG Watford hard disc for BBC/master. £300 ono Tel: (0765) 605530 Evenings.
- Master compact twin drives, colour TV, viewsheet, view, joystick, utilities and manuals £250. Tel: Dobbs 0482 46484 Evenings.
- Master 512k, 3.5/5.25 drives, hi-res green monitor, centronics GLP II printer, some software. Good condition. £450 ono. Tel: Winchester (0962) 862844.
- A3000 colour monitor, lots of public domain software. Good cond. £650. South London. Tel: Steve on 0305 832671 Evenings only.
- Electron £45 software-over 25 titles including view, viewsheet, forth, strykers run, arcade soccer for BBC/Electron SAEs to Stuart Norris, 5 Normanstead Road, Tilehurst, Reading.
- Master 128, Medium resolution colour monitor, 5.25" DD 40/80 drive adler printer, viewsheet, viewstore, viewspell, view, wordwise, help advanced operating system, competition pro BBC joystick £300 games including, Elite, UIM reference manuals £495ono. Tel: Congelton 0260 278724.
- BBC B with mouse, 512 Co-pro adaptor and 1 meg expanded memory £200. 60 meg Technomatic hard disk drive as new £300. 40/80 track disk drive £25. Le Modem modem £25. Microvitec colour monitor £50. Epson FX 80 printer with parallel and serial interface £75. Philips mono monitor £25. Also two more standard B's each rom board one with 40T drive and one with 80T, £150 each. 6502 second processor £20. Two Deltronic control-it boxes plus leads £15 each. Computer workstation £20. Plus heaps of software/roms/books for above. Please ring for details.Tel: 081 300 3643.
- Master 65C102 turbo board £60; Master PSU £35; keyboard £40; IC's for BBC B- DNFS ROM £10; 6502 £3.00; 6845 £4.00; UPD7002 £4.00; 6522 £3.00; SAA5050 £6.00; OS1.2 £10.00 plus many others. Tel: 0480 403277.
- Master 128, monitor, twin D/D, 2nd processor, AMX mouse, joysticks, manuals, software, ROMS. G.C. £600 ono. BBC games (tapes) £30. Tel: 0703 785979.
- A3000 Computer, Colour Monitor with stand, Printer and Tel:etext plus Artisan 2, Interdictor 2, E-Type and over 20 other software discs with box, Superb Condition All for £950 (Cost £1420) Tel: 0633 420351.
- Acorn colour monitor for Archimedes/A3000 £150 Excellent condition. Tel: 051 526 8931.
- Archimedes, BBC, software, hardware, games, business. Tel: Paul 0928 581429.
- Master 128, View, Viewsheet manuals £260. Philips 8833 stereo colour monitor £150. Dual 5.25 40/80 drives in plinth £130. Morley AA Rom board £27. 3.5 drive £40. Juki 6100 daisywheel printer 3130. Datachat 1223 modem, BBC lead, software £40. AMX art £15. Exmon II £15. Viewstore £25. Tel: 051 606 0289.
- BBC Master 128k colour monitor, disk drive, Tel: 0457 860295.
- 512k Co-Pro, mouse, manual, original DOS+ and GEM discs. £120. can demo. Tel: Southampton 0703 769640.
- Wanted Archimedes computer for school child. Any condition considered, good price paid, will collect. Tel: (0332) 672915.
- BBC/Electron games on cassette/disk, all originals from £1. Acorn Users from Feb 88 and before. Tel: 081-5461957.
- A3000 Archimedes, colour monitor, + games, 40 P.D. discs, PC-emulator many magazines with discs all boxed, excellent condition £695. Tel: 0582 768835.
- Wanted Archimedes or BBC master computer. I will consider any model and pay a reasonable price. Tel: (0332) 281829.
- Acorn Electron, plus1, joysticks £70.00. Pixel perfect DTP, 9 fonts, clipart £75.00. 4.5 years Electron User including 24 cassettes £25.00. AP5 AMX mouse, DFS £80.00. Plus3 £100.00. Tel: 081 847 0364 (Evenings).
- BBC MIDI interface, EMR Pro-performer 16-track sequencer, ROM leads. Record/playback via MIDI instrument. Punch-in, loop, transpose. Hardly used £95 ono Tel:081 977 2682.
- Master 512k (P.C.Emul.), 8833 med-res. Col.Mon., Teletext decoder, 5.25" drive, mouse, £100 Books and software:£650. Tel: (0462) 817408.
- Master 128 colour monitor twin 40/80T drives, loadsa software manuals etc. £560 ono Tel:e: 096332469.
- Archimedes A440, Panasonic 1124 printer, both boxed "as new" £1250. Tel: Steve Frost 071 743 8000 Ext 5844.
- Replay Rom R8271 for single density DFS £20 ono. Tel:Mark 0226 282501.
- Master 128, dual double sided 40/80T disc drive, colour monitor, printer, lots and lots of software. £400 ono. Tel:0532 688804 Evenings.
- Archimedes A310-M base. Risc-os, backplane, second disc drive also FX-80 printer Tel:0526 44559.
- Archimedes 310m (upgraded) 4mb RAM, 20mb hard disk, 2nd floppy interface, Memic 1A E120 multisync monitor, scanner, PC access, 1st word+II, Impression II, Pipedream 3, many games. Cost new would be approx £3500. Reluctant sale. £1900 ono. Tel: 0823 672007.
- BBC B, 40/80 disc-drive, monitor\Television, dot matrix printer, morley Teletext, several ROMs many games and books. £425 ono Tel: 081 395 8364 (Carshalton)
- Wanted: Viglen console upgrade for BBC B, separately or as one unit extras sought after include: Genie utilities from P.M.S. & Solidisk 2-4 Meg/R.T.G. expansion, Anybody help? a student needs BBC B issue 7 (PCB) repaired or replacement in part-exchange, fitted with switch-mode power supply & electric fan. Tel: 051-220 0207.
- Master 512, colour microvitec monitor, twin 40/80 track drives (viglen) own PSU Teletext adaptor, AMX mouse/softwrae cartridges, ROMS, manuals, interword, spellmaster, word processor, good condition £700. Tel: 0422 240267.
- Philips CM80 (green) monitor £40 folders for Acorn-User and Micro-user £2 each. Tel: 0483 38036 (Guildford).
- A3000, 2mb, stereo colour, serial upgrade. PC Emulator, arcterm 7. Canon printer. Over a dozen major software titles, tons + tons of PD. All manuals, leads etc. £850 ono. No reasonable offer refused. Tel: 0606 846061.
- BBC Master compact, disc drive, colour monitor, software, worth £750, accept £350. Tel:0256 762972.

This is THE place to advertise your surplus items.
Our 105.000 readers are always on the lookout for a bargain and this is the first place they'll look!

- Wanted Archimedes 400 4mb RAM, 40mb+ hard disc Tel: 0483 772750 Evenings.
- Learn French on your micro. Renowned LCL course with VHS video, voice tape, book, 3.5" disc with 24 programmes. Spank new. Never used. Beginner to GCSE. Only £30. (save £20). Tel: 0574 270184 (Larne) after 8pm.
- Solid CAD 3D design program for sale. Comprises oiginal box, manual, single disc and brochures. Perfect condition. £85. Tel: Ian on York (03476) 683 after 4pm.
- BBC B, Watford DFS 40/80 disc drive, ROM socket board, interword, over £90 software, 1 year Micro User discs, dump out 3, various books, £200. Tel: Wokingham (0734) 784099.
- Archimedes 310 Risc os. Acorn colour monitor boxed never used unfinished weather-sat project. £650 ono Tel: 081 467 4796 after 6pm.
- A3000, colour monitor, manuals, lots of games, £725 ono, 0302 743669.
- Electron plus 1 plus 3 SW/RAM T2P3 view, viewsheet, loads games £140 Nightingale + Comstar £50 Tel: 0273 557883.
- BBC B with tape input, b/w TV as monitor, joysticks, £200 worth of software. Boxed as new £180 ono. Tel:0375 383078.
- Archimedes A130m. 1mb. Colour. RiscOs. P.C. emulator. 2-Podule backplane. Interface with 5.25" drive. RAM/ROM board with 170k battery-backed RAM. Joystick, software, blank discs, archive, risc user, £650. Tel:0752 845214.
- A3000, 2mb, serial upgrade, no monitor, £550 Tel:(051) 733 3067 Evenings Ask for Ian.

PLEASE PRINT THIS AD IN THE NEXT AVAILABLE ISSUE OF *THE MICRO USER*

Name ______________________

Address ______________________

____

______________________ Daytime Tel: ____________

POST TO: Micro User Classifieds, Europa House, Adlington Park, Adlington, Macclesfield SK10 4NP

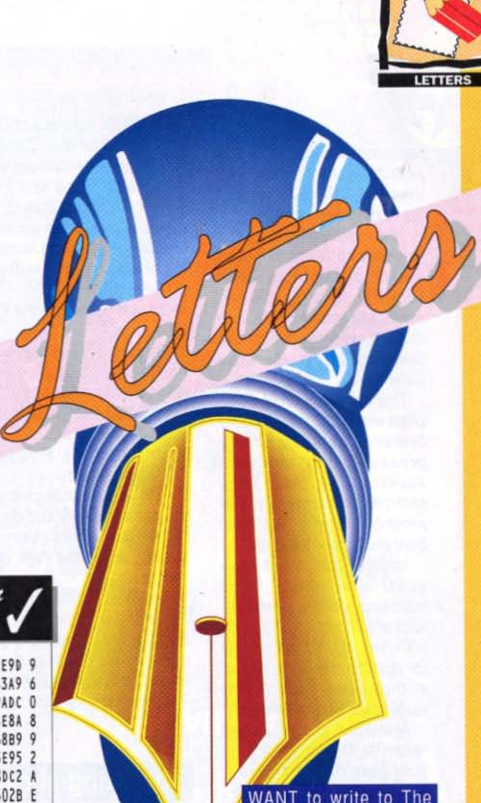
Cheque enclosed for £ ____________
(minimum £2 for 10 words)

I certify that any software offered for sale is original and not a copy`

Signed ______________________

CONDITIONS

- This service is EXCLUSIVELY for the use of private readers. No trade ads will be allowed.
- To avoid encouraging software piracy, all ads will be carefully vetted before they are accepted.
- Ads can only be accepted on the form opposite (or a photocopy of it).
- There is no maximum to the number of words you include in your ad. if there is insufficient room on the form, continue on a separate sheet of paper.
- The cost is 20p per word, with a minimum of 10 words.
- **WE GUARANTEE your ad will appear in the next available issue of *The Micro User.***



PRIZE letter

Printing graphics

MY Epson LX400 printer uses the extended Ascii character set – 128 to 255 – for italics and graphics. While italics can be switched on and off simply using ESC 4 and 5, I am not aware of any printer or computer commands which will provide a simple keyboard conversion for graphics.

Reading the May issue of The Micro User *I noticed that Peter Gaunt's article showed how to use an assembly code program to convert the # into £ on the Epson. This could be used with Wordwise.*

The following programs use the same method to access the graphics character set direct from the keyboard.

*When run they will generate machine code utilities which are saved to disc as GChrs and TChrs. When *RUNed, GChrs will replace the standard character set with the codes required for the printer's graphic characters, *RUNing TChrs will revert to normal characters.*

*They can be called in Inter-Word using the embedded command facility at any point in the text. The subsequent characters will appear as alpha-numeric on the screen but as graphics on the printer. *RUN TChrs is used to revert to normal mode.*

Of course you need to have pre-selected the graphics character set using Inter-Word's printer control code menu and it is advisable to select uni-directional printing for accurate graphics printing. – **Peter Harris, Bath.**

```
 10 REM Keyboard Graphics
 20 REM listing one
 30 REM By Peter Harris
 40 REM (C) The Micro User
 50 oldvec=&20E:newvec=&230
 60 FORI%=0TO2STEP2
 70 P%=&A60
 80 [OPTI%   85 .init
 90 LDA oldvec
100 STA newvec
110 LDA oldvec+1
120 STA newvec+1
130 LDA#start MOD &100
140 STA oldvec
150 LDA#start DIV &100
160 STA oldvec+1
170 RTS
180 .start
190 PHA
200 LDA&D0
210 AND#1
220 CMP#1
230 BNE restore
240 PLA
250 CMP#33
260 BCCold
270 ADC#127
275 .old
280 JMP(newvec)  290 .restore
300 PLA
310 JMP old
320 ]
330 P%=P%+1
340 NEXT
  350  x$="SAVE  GCHRS  "+STR$~init+"
"+STR$~P%
  360 DIM B 30:$B=x$:X%=B MOD &1
00:Y%=B DIV &100
  370 CALL &FFF7
```

Get it right ✓

```
 10 =    0 0    210 = 4E9D 9
 20 =    0 0    220 = 83A9 6
 30 =    0 0    230 = 9ADC 0
 40 =    0 0    240 = 4E8A 8
 50 = 7FE4 4    250 = 68B9 9
 60 = E48D 6    260 = 3E95 2
 70 = 1220 7    270 = 8DC2 A
 80 = F301 D    275 = 402B E
 85 = 6272 7    280 = CCC0 0
 90 = D0DA A    290 = 8350 9
100 = 2CA4 7    300 = 4E8A 3
110 = 837E 9    310 = FDB2 8
120 = 4A8B 6    320 = 8B58 B
130 = 2EA4 6    330 = 5569 9
140 = 4103 9    340 = 2C83 7
150 = A5E4 6    350 = 1671 5
160 = F2F0 1    360 = 9BA0 9
170 = 9843 F    370 = 17A4 5
180 = 3208 5
190 = 824E 0
200 = 2288 B
```

```
 10 REM Keyboard Graphics
 20 REM listing two
 30 REM By Peter Harris
 40 REM (C) The Micro User
 50 oldvec=&230:newvec=&20E
 60 FORI%=0TO2STEP2
 70 P%=&A60
 80 [OPTI%   85 .init
 90 LDA oldvec
100 STA newvec
110 LDA oldvec+1
120 STA newvec+1
130 RTS
140 ]
150 P%=P%+1
160 NEXT
170 x$="SAVE TCHRS "+STR$~init+" "+STR$~P%
180 DIM B 30:$B=x$:X%=B MOD &1
00:Y%=B DIV &100
190 CALL &FFF7
```

Get it right ✓

```
 10 =    0 0    100 = 2CA4 7
 20 =    0 0    110 = 837E 6
 30 =    0 0    120 = 4A8B 3
 40 =    0 0    130 = 9843 1
 50 = A8E4 4    140 = 8B58 E
 60 = E48D 8    150 = 5569 0
 70 = 1220 B    160 = 2C83 6
 80 = F301 D    170 = 891A E
 85 = 6272 B    180 = 9BA0 9
 90 = D0DA 5    190 = 17A4 9
```

WANT to write to The Micro User? The address is:

Letters, The Micro User,
Europa House, Adlington
Park, Macclesfield SK10
4NP.

Writers of the most interesting letters receive a £10 prize.

Faulty module listing

THE ModuleHead program featured in the May edition of The Micro User *has an error in it which prevents your module header from being saved to disc correctly. This can be solved by loading the ModuleHead program and entering the lines shown below.*

```
505 dat$ = " "
720 IF NOT end% AND data$ "
" BPUT#fn%,dat$
790 dat$ = "DCD "+data$
810 dat$ = "DCD 0"
```

– **Edward Turner, Maidenhead.**

● Thanks for pointing this out.

Dabhand hits high note

ONE frequently hears disaster stories about computer equipment and suppliers, and so when an instance of particularly good service occurs it makes a very welcome change.

I use an Archimedes 410/1 professionally, and had it upgraded to 4Mb ram and 47Mb hard disc last year. The fitting was carried out by a firm in Leeds which shall remain nameless. I believed them to have a good reputation since they were well established in the BBC Micro world.

In May I decided to have an Arm3 and VIDC Enhancer fitted to my computer, and since Dabhand Computing Ltd in Manchester had one in stock and were fairly local, I took my machine there to have it fitted.

However, on getting home with my upgraded machine it began to crash intermittently and by the end of the day had died completely. I assumed that the Arm3 was faulty and took the machine back to Dabhand.

The person who had fitted the Arm3, Neil, spent quite some time checking the machine over and replaced the Arm3 with the one from his own machine. This seemed to cure the problem. However, when I got home the problem returned.

I was unable to return to Dabhand until the following week, but Neil was most helpful on the telephone and

➤

reassured me that there was probably nothing wrong with the basic Archimedes as they are usually very reliable.

The following week I returned to Dabhand. Neil spent over two hours disassembling my computer and eventually traced the fault to the ram expansion which had been fitted by the other company.

This consisted of 24 simm chips which had been treated brutally: Instead of being pressed gently into their sockets they had been rammed in carelessly and most of the pins had been bent over under the chips.

In total Neil must have spent over three hours repairing shoddy workmanship which had nothing to do with him. He did not charge for any of it. He is the sort of enthusiastic expert who really inspires confidence.

Needless to say, I shall return to Dabhand for anything I require in the future. – **J. F. Sebastian, Prestbury.**

● It certainly is refreshing to receive letters like this. Fortunately the Acorn market is full of enthusiasts who will go out of their way to help users.

More power to the Electron

I HAVE an Electron, the Software Bargain's full expansion board and a Plus Three ADFS disc drive. Is it possible to regain the memory lost by the Plus Three?

Can I also expand the memory to 64k? Is there a graphics package that will run on this machine? And does the scanner from Watford Electronics work with an Electron? – ***S. Gibson, Dukinfield.***

● PRES do versions of DFS and ADFS for the Electron which run in sideways ram and leave Page at &E00. Both cost £17.19 on 3.5in disc There is also a package available from them consisting of the sideways ram and software for £55.95. The extra ram plugs into the Plus One.

You can expand the memory to 64k using Slogger's Shadow Ram Board but I think PAGE will still be set to &1D00. You could go even further and buy Slogger's 64k Turbo Board.

This will not only give you the extra memory but also a significant increase in speed, all at the flick of a switch.

The Watford Scannerdoes not work with the electron and the only graphics package for the Electron that I know of is available from The Fourth Dimension.

Thrusting cheat

I HAVE recently been playing the game Thruster, which you sent out on the monthly disc, and I have found a cheat!

As soon as you get on to the level you want to skip press SHIFT for one second. This will not work if the ship has started to fall though. You will find that when you release the key the message: Entering Level.. *will appear. –* **Richard James Wareham, Huntingdon.**

Quite a gamble

I WAS interested to read the recent letter from Kike Carr. He was replying to the article I wrote entitled "Bucking the Odds" which looked at some of the points you need to consider when writing a gambling program.

Mr Carr might be interested to know that I have written a book on this subject which goes further than the article and actually puts theory into practice with programs to test a number of gambling systems. The book, entitled Basic Betting – The Micro Bytes Back, should be out by the end of the year and is written under the pen name of Graham Deane.

I should point out that the programs were written using the PC GWBasic interpreter. This was requested by the publisher to try to give the book wider appeal. However I wrote the programs on a BBC A3000 using the PC emulator. Therefore the other BBC A3000 and Archimedes users will be able to run them. – **Graham Kendall, Kendal, Cumbria.**

Hard protection

I HAVE recently bought a database and installed it on my hard disc as per the manual. However when the application is called, due to the software protection, the original floppy disc must be in the drive zero.

This, in my opinion, makes installation on hard disc pointless. A help file within the application states that an unprotected version can be obtained by returning the original disc and quoting the serial number of your machine.

But a nominal fee is also required – the company's interpretation of the word nominal is clearly at odds with my own, as the fee they require is £35 which is a third of the original cost.

While I have no complaint with the quality of the software, I feel that we users are being taken advantage of. Had I known these facts prior to ordering the package I would probably have chosen one of the rival databases. – **M.A. Bodley, Lincoln.**

● This is a very common way of protecting a piece of software against theft after it has been installed on a hard drive. Loading the program is still faster from the hard disc.

The only other way that we know of is to use a *Manual lock*, where the user is required to enter a word from the manual each time the program is run, which is clumsier still.

The alternative for software houses is to register each user and charge much higher prices for the software. The company are offering you the choice of a protected disc or registering, which seems quite reasonable, although perhaps the cost is a little high.

Most software for the Archimedes is still very cheap in comparison with other machines but it can only stay that way if sales are high enough. Of course, if people did not steal programs then protection techniques like these would not be necessary.

Electron View on Archimedes

Following the recent letters in January and April about View and Viewsheet on the Archimedes using the BBC Emulator I found that the Electron version of View works fine.

*Simply click on the Emulator, then exit it again, select *CacheRom and put View into socket 15 so that it gets a high priority. Then select *EmulateBBC to enter View.*

The hardest part was translating the Electron keys to work on the Archimedes, but I have found all but four keys work on the Electron – those for the Electron K, I, M and N. Print is equivalent to F0 on the Archimedes.

Arc F0 to F9
Elk 0 to 9
Arc F0 to F9 with Shift
Elk A to J
Arc F0 to F9 with Ctrl
Elk Q to Z
Arc £ with Shift   Elk 0
Arc Page Up   Elk P

The Arc cursor keys with Ctrl replace _ ' . and /. – **E. F. Kelly, Merseyside.**

Listing Chaos

I am glad to see that you published my article on Chaos in the July issue of The Micro User. *However I would like to point out a couple a mistakes that crept into the listing.*

Line 380 in the listing for diagrams of Chaos should have read:

```
IF N% <= T% GOTO 440
```

Also some extra zeros seem to have crept into the table at the bottom of page 48. – **James Vernon, Devon.**

Loading rom images

IN RESPONSE to the letter from Mr D. G. W. Rance in the May issue of The Micro User *it is indeed possible to load rom images into Sideways Ram in the Slogger Rombox Plus.*

Either 8k or 16k static ram chips can be used – 6264, 62256 available from

ALL programs printed in this magazine are exact reproductions of listings taken from running programs which have been thoruoghly tested.

However, on the rare occasions when mistakes occur corrections are published as a matter of urgency. Should you encounter error messages when you type in a program, they will almost certainly be the result of your own typing mistakes.

Unfortunately we cannot answer personal programming queries concerning these mistakes. Of course letters about suggested errors will be investigated without delay, but any replies found necessary will only appear in the letters pages.

The Fourth Dimension

SPECIAL OFFER: If you buy 3 or more products directly from us you may deduct £10 from the total cost

123456
ENTER

Enter The Realm

Chocks Away Extra Missions

WE CAN SAY ANYTHING
ANYTHING AT ALL

ARCticulate

Saloon Cars

Boogie Buggy

SCORE
HIGH
100000
NEVRYON
POWER
SHIPS

Nevryon

Break 147 & Superpool

ARCtist

BBC A3000 & ARCHIMEDES SOFTWARE

ALL the following Archimedes software is compatible with the BBC A3000 and 310 & 400 Series

EDUCATIONAL SOFTWARE

(from Triple 'R' Education)

Picture Book	19.95
Money Matters	19.95
Data Word	19.95
Target Maths	19.95
Converta-Key	19.95

ARCADE GAMES

Boogie Buggy *(Arcade Graphics & Gameplay)*	24.95
Nevryon *(Unbelievable Graphics & Gameplay)*	19.95
Inertia *(Isometric Arcade Action)*	19.95
Apocalypse *(3D Mega Game - 9 Planets)*	29.95
Drop Ship *(Superfast Arcade Action)*	19.95
Arcade Soccer *(World Cup 1-24 Players)*	19.95
The Olympics *(6 Varied Events - 1-6 Players)*	19.95
Quazer *(Furious Arcade Action)*	11.95
Enter The Realm *(Hopefully October '91)*	24.95

3D SIMULATIONS/GAMES

Saloon Cars *(The Ultimate Driving "Game-ulation"!)*	24.95
Break 147 & Superpool *(Incredibly Realistic Snooker and Pool Simulator)*	24.95
Chocks Away *(Biplane Sim. for 1 or 2 Players)*	24.95
Chocks Away Extra Missions *(26 Extra Missions plus some Superb Enhancements)*	19.95
Chocks Away Compendium *(Chocks Away + Chocks Away Extra Missions)*	39.95
Powerband *(Superfast Formula 1 Grand Prix)*	24.95
E-Type *(3D Classic Car Racing)*	19.95
E-Type Designer	16.95
E-Type Extra 100 Miles	16.95
Holed Out *(3D Golf for 1 to 6 Players)*	19.95
Holed Out Extra Courses Vol.1	16.95
Holed Out Extra Courses Vol.2	16.95
Holed Out Designer	19.95

SPEECH & ART SOFTWARE

ARCtist *(Easy to use Professional Art Package)*	24.95
ARCticulate *(The Animated Speech Synthesizer)*	24.95

COMPILATIONS

The Real McCoy *(4 Game Compilation)* *(U.I.M., Arcade Soccer, White Magic & Quazer)*	29.95
The Real McCoy 2 *(4 Game Compilation)* *(Apocalypse, Holed Out, The Olympics & Inertia)*	29.95

GRAPHIC ADVENTURE

The Wimp Game *(Unique Graphic Adventure)*	19.95

ARCADE ADVENTURES

Pysanki *(Futuristic Arcade Adventure)*	19.95
Man-At-Arms *(Medieval Arcade Adventure)*	19.95
U.I.M. *(Massive 3D Action Adventure)*	29.95
White Magic *(Magical Arcade Adventure)*	19.95
White Magic 2 + Designer	19.95

BBC MICRO, MASTER, COMPACT & ACORN ELECTRON

Title	BBC & Electron Cassette	BBC B & Master 5 ¼" Disc	Master Compact 3 ½" Disc
Picture Book *(Educational Software)*	12.95	14.95	15.95
Money Matters *(Educational Software)*	12.95	14.95	15.95
Data Word *(Educational Software)*	12.95	14.95	15.95
Target Maths *(Educational Software)*	12.95	14.95	15.95
Converta-Key *(Educational Software)*	12.95	14.95	15.95
E-Type *(3D Classic Car Racing)*	9.95	14.95	15.95
Nevryon *(Pure Arcade Action)*	---	14.95	15.95
Inertia *(Isometric Arcade Action)*	9.95	12.95	13.95
U.I.M. *(Massive 3D Action Adventure)*	---	19.95	21.95
Holed Out *(3D Golf for 1 to 4 Players)*	12.95	14.95	15.95
Holed Out Extra Courses Vol.1	9.95	11.95	12.95
Holed Out Extra Courses Vol.2	9.95	11.95	12.95
Arcade Soccer *(Fast Action - 1 or 2 Players)*	9.95	12.95	13.95
White Magic *(Magical Arcade Adventure)*	9.95	12.95	13.95
White Magic 2 + Designer	9.95	12.95	13.95
The Art Studio *(Easy to use Art Package)*	9.95	12.95	---

HOW TO ORDER

TELEPHONE

☎ (0742) ☎
769950 or 700661

ACCESS & VISA Accepted

24 Hour Service 7 Days a Week

SAME DAY DESPATCH

All orders are despatched immediately by 1st Class post. Carriage is paid by us in the U.K. (Overseas orders add £3 per product).

FULL DETAILS OF ALL OUR GAMES ARE AVAILABLE ON REQUEST & ARE SENT WITH ALL ORDERS

LETTER

Simply send us a quick letter telling us the game(s) you require, your name and address, and payment via cheque, postal order or ACCESS or VISA card details.

The Fourth Dimension,
1 Percy Street,
Sheffield, S3 8AU,
England.

NO Quibble GUARANTEE

If any of our discs ever become faulty (for whatever reason) we will replace them free of charge immediately. Simply return them to us with your name and address.

➤

Watford Electronics or other component stockists. If the 8k device is used it must be inserted in the third socket – page 6/14. The 16k device can be used in any of the rom sockets.

*The Rombox plus software includes the commands *RSAVE to save rom images and *RLOAD to load images into the ram.*

The intention was that commonly used roms would occupy the rom sockets while those used less frequently could be loaded into Sideways Ram as needed. This would reduce the risk of damage to the roms.

If Mr Rance or any other reader would like any information on this or any other Slogger product I can be contacted at the following address.– **Phil Williams, Tornado Software, Tegfan, National Street, Tywyn, Gwynedd LL36 9DB, Tel: 0654 710204.**

Ultra Intelligent Mixup

Thank you for publishing my letter about the UIM cheat – unfortunately somewhere along the way line 150 was put through the wringer. It should read:

```
V%=V%+(D%>>>31)
```

– David Radford, Bolton.

● We have had several letters pointing this out, sorry.

Different perspective

I was disappointed to find that the Computer Aided Perspective program in the July issue of The Micro User *would only work on machines with shadow screen.*

However I have produced a modified version of the program which will run on any standard machine. To do this the following modifications need to be made to the original listing;

```
60 MODE 7
270 MODE 4: PROCpreview:MODE
7: GOTO 160
420
PROCeraseframe1(numpt%+1)
430 PROCdrawframe2(ZR1)
440 PROCframe2on
500 PROCeraseframe(ZR1)
510 PROCdrawframe1(ZR1)
520 PROCframe1on
960 VDU 19,0,4;0;
970 VDU 19,1,7;0;
1000 VDU 19,0,4;0;
1010 VDU 19,1,7;0;
1040 GCOL 2,2
1080 GCOL 2,2
1120 GCOL 1,1
1160 GCOL 1,1
```

Although much of this fix defeats the object of screen switching by having frame one and two drawn in the same colours, it does work in Mode 4 and so frees extra memory. – **James Aylett, Salisbury.**

Speedy deletion

IN the July issue of The Micro User *I noticed a letter from W. Cumins. He was having trouble deleting files after copying on the Archimedes. There are a number of other methods of deleting locked files without unlocking them.*

*If you enter *WIPE (pathname) FR~C~V on the command line – obtained by pressing F12 – the specified file or directory will be deleted.*

If you are transferring files via the ram disc, then instead of dragging Select when copying files you can drag with Shift held down. This will move the file by copying it and deleting it in one operation.

Incidentally, if you double-click on applications and directories with Adjust instead of Select, the Filer will close the parent directory viewer automatically.

Other useful operations are that clicking on the close icon of a filer window with Adjust opens the parent directory while closing the current one. And dragging with Adjust when transferring files closes the directory viewer after the copy or move. – **Gerald Holdsworth, Kent.**

● It can often be annoying trying delete a whole directory structure which contains some locked files. But there is a PD program called !Wiper which will delete an entire structure including locked files all in one go.

Colouring it in

I HAVE been wanting to put colours in my programs for ages but it never explains clearly in my books. Please could you show me how? – **Christopher Smith, Bradford.**

● It is very easy to add colour to Basic programs on Acorn computers. The number of colours you can have on the screen at once is limited by the current graphics mode.

For example, in Modes 6, 3 and 0 you can only have two colours. In Modes 5 and 1 there are four colours and in Mode 2 sixteen colours although eight of these are really just flashing combinations of the other eight. For example, *MODE 1* at the start of the program will put the computer into a four colour mode.

To change the colour of text use the *COLOUR* command followed by a number; 3 = white, 2 = yellow and 1 = red. For example, after *COLOUR 1* the colour of any new text will be red.

To change the colour of lines in graphics you must use the *GCOL* command.

This is more complicated and has two parameters, but if the first one is zero the second one will always set the colour of lines in a similar way to the *COLOUR* command. For example, after *GCOL 0,2* the colour of any new lines will be yellow.

There's lots more to this, but that should get you started.

Magic mistake

Thanks for using my Magic Squares program in the August issue of Micro User. Unfortunately there is an error in line 180. This should read:

```
180 IF N < 37 or N > 54 D =
D - C ELSE A = A - B
```

–Jon Millington, Bristol.

Carrying the Torch

Torch Computers went out of business in February 1990. The computer manufacturing part of Torch's operations was bought by the Cube Group who went out of business themselves in January 1991 and were bought by Proactive Control.

As a result, owners of Torch systems, especially the BBC Micro add-ons, have been left wondering where to turn for help and advice.

I worked at Torch and subsequently for Cube for over four years during which time I participated in the development of many products. I also ran the BBC Micro-based product support.

As Torch began disposing of the Acorn-related items I was able to save or buy some of them and so I still have many of the original manuals and discs for the system.

If any Torch users need support or help I would be pleased to answer their questions. If I do not know the answer I can usually find someone who does.

If anyone wants to get in touch with me they can contact me by post at the following address. Please note that this is a labour of love rather than a way to get rich quick, so I would appreciate a SAE with enquiries. – **Mark Cook, 70 Stubbs Lane, Braintree, Essex CM7 6XB.**

Macro tip

MACRO assembly is a useful technique which helps to make Assembly language source code more readable and reduces the amount of typing required. It is illustrated in the DabHand book – Archimedes Assembly Language – but a potential snag is not mentioned.

The problem appears when using forward addressing to a label within the body of the macro and the same macro is used more than once. For example, consider the following:

```
[OPT PASS
FNmacro(1)
FNmacro(2)
]
```

On the first pass, any forward addressing to labels within the macro will be left as the label has not yet been encountered. When the macro is called a second time all references to the label will refer to the last definition – the one in macro(1).

On the second pass the label will have been reassigned to the value received in macro(2). So the forward addressing in macro(1) will refer to macro(2). All forward addressing has gone completely wrong.

The solution is for each function to have its **own** *two-pass loop to update all internal labels immediately before the final code is generated.*

Even this is not totally satisfactory, as the function may need to branch into the main program. So the inbuilt two-pass must only be used on the second pass of the main code:

```
DEF FN macro(J%)
LOCAL Q%,PA%
Q% = P%
FOR PA% = 0 TO PASS STEP 3
P% = Q%
[OPT PA%
;macro code
]
NEXT : = J%
```

– A. J. Bush, Newcastle-upon-Tyne

● Thanks for the tip. Macros are certainly useful on the Archimedes and A3000 where memory usage is not as important as speed.

Boost your Archimedes or BBC Micro's sound output with

SOUNDBLASTER

Extend the sound capabilites of your BBC Micro, Archimedes, A3000 or Music 5000 by routing the output through the Soundblaster's high quality amplifier and speakers.

The up to the minute amplifier implements the latest microchip technology to produce an earshattering output. Twin volume controls enable you to adjust the output and balance to suit.

The quality 50 watt speakers consist of a woofer for thumping bass output, a mid-range unit for crisp music and effects and a tiny tweeter which pumps out the highest frequencies the ear can hear.

The package comes complete with mains adaptor and full instructions.

No soldering is required – simply plug in, boot up your favourite software and turn up the volume.

The essential peripheral for all games players and musicians

ONLY £47.95

Passing an exam . . . applying for a job . . . whatever you want to do in life you need to be able to SPELL!

There's mounting alarm about the appalling standards of spelling among Britain's schoolchildren. MPs, teachers, parents and employers are all stressing the vital importance of being able to spell correctly.

Yet most homes have what could be the ideal means of teaching spelling – the computer.

Instead of zapping aliens it could be turned into the best weapon of all to deal a body blow to bad spelling. With the help of a brilliant new software package that not only makes practising spelling painless but also loads of fun as well.

SPELL! is unique. It lets the user learn at his or her own pace. They can take as long as they like – or take on the computer in a high-speed challenge!

And this one package is ideal for everyone – with the lowest age group suitable for under-5s, while the more advanced words will stretch even the most able students.

It includes five different tests, each making use of more than 5,000 words – so much variety that you'll never get bored.

- **5 DIFFERENT TESTS**
- **OVER 5,000 WORDS**
- **FOR AGES 5 TO 15**

SPELL! only costs £8.95. It is now available on disc and tape for six of the most popular home computers.

PLEASE USE THE ORDER FORM ON PAGE 136

FontStyle

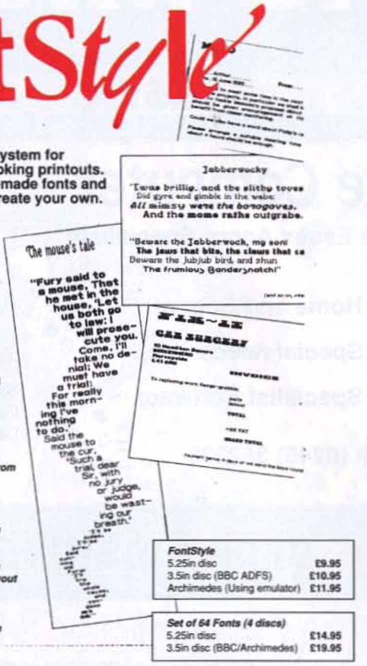
Fontstyle is a versatile system for creating professional looking printouts. It comes with two ready-made fonts and a designer so you can create your own.

Plus you can now get a set of four discs containing an extra 64 fonts!

Fontstyle is so easy to use. You just type in your text using your favourite word processor – enter the easy-to-remember formatting codes and save it. Then just load in the FontStyle program and you'll have superb results within minutes.

Some of FontStyle's features

- ***Professional-looking results from 9 pin printers***
- ***Simple to use***
- ***Fast draft mode***
- ***64 fonts available***
- ***Up to 8 fonts in any paragraph***
- ***Print any font in different dimensions***
- ***Temporary or hanging indents***
- ***Dynamic control over page layout***
- ***Flexible and easy-to-use font designer***
- ***Ideal for letterheads, invoices, newsletters, memos and so on***
- ***All popular word processors supported***



Jabberwocky

'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe:
All mimsy were the borogoves,
And the mome raths outgrabe.

"Beware the Jabberwock, my son!
The jaws that bite, the claws that ca
Beware the Jubjub bird, and shun
The frumious Bandersnatch!"

The mouse's tale

"Fury said to
a mouse, That
he met in the
house, 'Let
us both go
to law: I
will prose-
cute you.
Come, I'll
take no de-
nial; We
must have
a trial:
For really
this morn-
ing I've
nothing
to do.'
Said the
mouse to
the cur,
'Such a
trial, dear
Sir, with
no jury
or judge,
would
be wast-
ing our
breath.'

FontStyle	
5.25in disc	£9.95
3.5in disc (BBC ADFS)	£10.95
Archimedes (Using emulator)	£11.95

Set of 64 Fonts (4 discs)	
5.25in disc	£14.95
3.5in disc (BBC/Archimedes)	£19.95

Take a step into the world of professional publishing with

DATABASE PUBLICATIONS

DTP

This is an easy-to-use and flexible page design system for producing high-quality printouts through your Epson compatible printer. It comes with four of its own fonts to get you started plus a Font Designer to keep you going.

Some of the features of Database Publications DTP

- Independent control of bold, italic, 'thin' and underline characteristics of the system font
- Proportional spacing of both external and system fonts
- Stretching and compressing of any area
- Pixel editing via zoom facility
- Up to A5 page design
- No special disc format
- Four fonts provided
- Font Designer supplied
- Built-in Graphic designer
- Import text or type direct
- Can import cut-outs
- Built-in Mode converter

Database Publications' DTP

5.25in DFS 40/80 track disc (only) £14.95

Due to the complexity of the program the fill routines will not function correctly with the B+, Master or Compact – all other features are compatible

The Micro User gui

ESSEX

Le Computer

the Essex Acorn Specialists

- **Home and School**
- **Special needs**
- **Specialist Software**

Tel: (0245) 362225

THE LEARNING CURVE

Specialist
Participating
Dealer
Acorn

LONDON

ACORN APPROVED

LONDON DEALER

Wide range of software and hardware stocked

EDUCATION ORDERS WELCOME

PHONE FOR BEST PRICES

Easy to get to
Train: WOOD ST Station
(British Rail)
Road: Bottom of M11,
just off North Circular
Tel No: 081-521 1784

VISA

AUTOMATIC SERVICES
217 WOOD STREET
WALTHAMSTOW
LONDON E17 3NT

BEDFORDSHIRE

ADVANCED COMPUTER SERVICES

The area's only Acorn specialists have moved. Please note the address of our new, large showroom and repair facility which is **NOW OPEN!**

Summer Sale

We have a small stock of BBC B refurbished parts for sale. Examples include: Keyboards £32, PSUs £36, Keyswitches £1.00, Keytops £0.50, ULAs £8 (+ many more)

75 Wellington Street, Luton, Beds, LU1 5AA
Tel: (0582) 20604, Fax: (0582) 480833

VISA

CUMBRIA

FREE **support with all our systems**

*Expert advice! on system purchase
*Expert help! on using your system
*Expert backup! software support and hardware servicing
*Leasing facilities now available

Consult the experts!

CSS Computer Centre

Unit 3A Townfoot Ind. Est. BRAMPTON
CUMBRIA CA8 1SW
☎ 06977 3779

Acorn Qualified dealers and Unix centre
Authorised SJ Networks, installer * Education specialists
Government plc and education orders welcome

BRITISH BROADCASTING CORPORATION MASTER SERIES MICROCOMPUTER

Acorn
The choice of experience

SJ
RESEARCH

WEST MIDLANDS

MAUDEN SALES
P.O. Box 23, Stourbridge, West Midlands DY7 6SQ
Tel: 0384 371362

MICRO'S IN EDUCATION SHOW

Saturday 26th, Sunday 27th October 1991 10am-5pm
The Stewpony Hotel, Stourton, Stourbridge.
On the A449 between Kidderminster/Wolverhampton

Representatives from Acorn, Commodore & Amstrad will be available to talk to you, also TV cartoons and play area for children, so that mums and dads can talk in peace. Tea and Coffee will be on sale. Educational programs, catalogues and magazines available

IF YOU WANT ADVICE "COME ALONG"

AMSTRAD

commodore

DERBYSHIRE

EQUIPMENT ALWAYS IN STOCK

Simply the Best!

MICROMANIA UK
SPECIALISTS IN QUALITY 2ND USER EQUIPMENT (0332) 830178

Cheaper than all the rest!

EVERYTHING SERVICED PRIOR TO DESPATCH

SALES HOT-LINE:
(0332) 830178

Archimedes A3000 Base	£495
Archimedes A310 Mono	£645
Archimedes A310 Colour	£695
Archimedes A410 Base	£895
BBC Master 128K/Drive/Monitor	£320
BBC B/Drive/Monitor	£245
Microvitec Colour Monitors From	£130
Philips Colour Monitors From	£150
Philips Green Screen From	£45

MAIL CHEQUES TO:
MICROMANIA
9 GLAMIS CLOSE
OAKWOOD
DERBY
DE2 2QJ

Carriage Extra

BARGAIN BOX!

1 Meg Upgrades for A3000
£50

BBC 5 1/4 40T Drives Cased/Leads
£75

REPAIRS REPAIRS REPAIRS

ACORN REPAIR SPECIALIST
WE'LL BEAT ANY OFFICIAL QUOTE.
3 DAY TURNAROUND

EDUCATIONAL AND INSTITUTIONAL ORDERS WELCOME

VISA

A310 UPGRADE TO 2 MEG £230 IN STOCK

ALL EQUIPMENT 3 MONTHS WARRANTY

PART EXCHANGE WELCOME

Contact Yvonne Benson on 0625 859555 now

de to local dealers

MIDDLESEX

JRLetronics Co

- Archimedes/A3000/BBC
- Computer Peripherals
- Educational & Business Software
- Documentation
- Discs & Paper

Proprietor:
J. H. JARLETT

THE LEARNING CURVE

Acorn
The choice of experience
Authorised Dealer

☎ 081-977 8053
and Fax

The Annexe, 2 Broad Street, Teddington, Middlesex TW11 8RF
After sales helpline – We try to help
Open: 10am-5pm Mon–Fri, 10am-2pm Sat

VISA

CLEVELAND

YARM COMPUTERS

HARDWARE – SOFTWARE – PERIPHERALS
SUPPLIES TO EDUCATION, BUSINESS AND HOME

TEL: 0642 786922
FAX: 0642 783740

THE LEARNING CURVE

ACORN DEALERS

FREE 1 MEG UPGRADE FITTED

WINPENNY HOUSE, 137 HIGH STREET
YARM, CLEVELAND TS15 9AY

VISA

WALES

CARDIGAN
Electronics

Computing and Electronics for Business Education & Leisure

YOUR ARCHIMEDES, A3000 & BBC SPECIALIST IN WEST WALES

Hardware-Software-Sales-Service-Support

ACORN DEALER FOR TEN YEARS

MAIL ORDER SERVICE

We are a major TANDY Electronics stockist too.
"Impression" Scanning and Laser Printing service

CLOSED WEDNESDAYS, OPEN SATURDAYS

Chancery Lane,
Cardigan,
Dyfed
SA43 1HD

0239 614483

VISA

ISLE OF WIGHT

COMPUTER TUTORIAL SERVICES

ACORN DEALERS
Archimedes & A3000
All Hardware and Software

Sales & Business Consultancy
Individual Tuition
Bespoke Software
Micro Computer Supplies

TEL: (0983) 294333 FAX: 298439
4 Mill Hill Road, Cowes, Isle of Wight PO31 7EA

BIRMINGHAM

DACO SYSTEMS

463 Warwick Road, Tyseley, Birmingham B11 2JP

Your Birmingham Acorn, Tulip & Osicom PC Dealer

• Special Needs • Business •
• Education • Home Use •

0% Finance on Acorn

Tel: 021-706 8933

DERBYSHIRE

Acorn Archimedes BBC A3000

We offer
Sound Practical Advice
Sales (0% Finance on Learning Curves)
Home Tuition
'Home and School'
Technical Support

(New - A3000 45mB Hard Card, Arriving soon A3000 ARM 3)

SELECTIVE COMPUTER SERVICES

Acorn Approved

Telephone
Derby (0332) 690691

LICENCED CREDIT BROKER

to have YOUR company included in this section

THE MICRO USER READER OFFERS

Please allow up to 28 days for delivery

Valid to 30.10.91

Back Issues

April 1991	£2.00	*2549*	☐
May 1991	£2.00	*2550*	☐
June 1991	£2.00	*2551*	☐
July 1991	£2.00	*2552*	☐
Aug 1991	£2.00	*2553*	☐
Sept 1991	£2.00	*2554*	☐
April-September Bundle (6 issues)	£10.00	*2119*	☐

Add £3 for Europe & Eire/£12 Overseas

September BBC Tape	£4.95	*2669*	☐
September 40t 5.25 Disc	£7.95	*2670*	☐
September 80t 5.25 Disc	£7.95	*2671*	☐
September 3.5 Disc	£9.95	*2672*	☐
September Archimedes Disc	£9.95	*2673*	☐

Fontstyle *(see page 133)*

Fontstyle	5.25" (40/80T)	£9.95	*2108*	☐
Fontstyle	3.5" (BBC ADFS)	£10.95	*2109*	☐
Fontstyle	(Achimedes)	£11.95	*2110*	☐
64 Fonts	5.25" (40T)	£14.95	*2115*	☐
64 Fonts	5.25" (80T)	£14.95	*2116*	☐
64 Fonts	3.5" (BBC/Archimedes)	£19.95	*2117*	☐

Arcade Game Creator
(DFS only)

OFFER OF THE MONTH

Cassette & Manual	£6.95	*2722*	☐
40/80t disc	£9.95	*2723*	☐

Disc Storage Box

5.25" discs only	£4.95	*2052*	☐

Fun School + Nursery Rhymes *(see page 120)*

Cassette	£9.95	*2090*	☐
5.25" Disc BBC B, B+ (40T)	£12.95	*2091*	☐
5.25" Disc BBC B, B+ (80T)	£12.95	*2092*	☐
3.5" Master Version	£24.95	*2093*	☐

Classic Games Compendium *(see page 120)*

5.25" Disc (40T)	£14.95	*2758*	☐
5.25" Disc (80T)	£14.95	*2759*	☐

Ten of the Best Educational Programs *(DFS only)*
(see page 120)

Cassette	£5.95	*2189*	☐
5.25" Disc (40T)	£6.95	*2190*	☐
5.25" Disc (80T)	£6.95	*2191*	☐

Re-Ink Spray *(see page 110)*

NEW

£12.95 *2103* ☐

Getting Started in BBC Basic

£4.95 *2761* ☐

Dust covers

BBC B & B+	£3.95	*2220*	☐
BBC Master	£3.95	*2222*	☐
BBC Master Compact	£3.95	*2224*	☐

Pen Tech 2000

Matt Black	£14.95	*2763*	☐
Silver	£14.95	*2764*	☐
Silver + Black	£20.00	*2765*	☐

HiTech Rolling Ruler *(see page 120)*

£6.50 *2087* ☐

Send to: Europress Direct, FREEPOST,
Ellesmere Port, South Wirral L65 3EB
(No stamp needed if posted in UK)

Products are normally despatched within 48 hours of receipt but delivery of certain items could take up to 28 days

ORDER at any time of the day or night

Don't forget to give your name, address and credit card number

By phone: ***051-357 1275***

By Fax: ***051-357 2813***

General Enquiries: ***051-357 2961***

Perfect Pair *(see page 133)*

£ p

Available For:	**MO2**	**Book**	**Example Disc**	**Price**	**Code**	**Please Tick**
Tape users	●	●	-	£19.95	*2271*	☐
Model B, B+ (40T disc)	●	●	-	£21.95	*2272*	☐
Model B, B+ (80T disc)	●	●	-	£21.95	*2273*	☐
Master (5.25" 40T disc)	●	●	-	£24.95	*2281*	☐
Master (5.25" 80T disc)	●	●	-	£24.95	*2276*	☐
Model B, B+ (40T disc)	●	●	●	£29.95	*2274*	☐
Model B, B+ (80T disc)	●	●	●	£29.95	*2275*	☐
Master (5.25" 40T disc)	●	●	●	£32.95	*2282*	☐
Master (5.25" 80T disc)	●	●	●	£32.95	*2277*	☐

Spell *(see page 133)*

Compact/Arch/Elec 3.5"	£8.95	*3612*	☐
BBC 5.25" 40T	£8.95	*3610*	☐
BBC 5.25" 80T	£8.95	*3611*	☐
BBC/Elec Tape	£8.95	*3617*	☐
Amiga	£8.95	*3614*	☐
ST	£8.95	*3613*	☐
PC 3.5"	£8.95	*3616*	☐
PC 5.25"	£8.95	*3615*	☐

Fun School 2 *(see page 116)*

NEW

	BBC Tape	BBC 40t	BBC 80t	Archimedes
Under 6 years	£8.95 *2169* ☐	£10.95 *2173* ☐	£10.95 *2180* ☐	£16.95 *2184* ☐
6-8 years	£8.95 *2170* ☐	£10.95 *2174* ☐	£10.95 *2181* ☐	£16.95 *2185* ☐
Over 8 years	£8.95 *2171* ☐	£10.95 *2175* ☐	£10.95 *2182* ☐	£16.95 *2186* ☐

BBC tape all three ages	£17.95	*2172*	☐
BBC 40t all three ages	£24.95	*2179*	☐
BBC 80t all three ages	£24.95	*2183*	☐
BBC Arch all three ages	£39.95	*2187*	☐

Binder

£5.95 *2756* ☐

Database Publications DTP *(see page 103)*

5.25" DFS 40 Track	£14.95	*2145*	☐
5.25" DFS 80 Track	£14.95	*2146*	☐

Sound Blaster *(see page 133)*

£47.95 *2088* ☐

Dabhand Books

Archimedes Assembly Language	£14.95	*2781*	☐
Disc for Assembly Language Book	£3.95	*2782*	☐
Archimedes Operating System	£14.95	*2783*	☐
Disc for the Operating System Book	£3.95	*2784*	☐
Archimedes First Steps	£9.95	*2785*	☐
Basic V	£9.95	*2786*	☐

Databank

NEW

£24.95 *2095* ☐

Forth Rom *(see page 120)*

£9.95 *2019* ☐

Add £4 per Rom for Europe & Erie £15 Overseas

Addition for postage: Europe & Eire add £3 ☐
Overseas add £5
Unless otherwise indicated

➡ ➡ ➡ ➡ ➡ ➡ ➡ ➡ ➡ **TOTAL** ______

Payment: Please indicate method (✓)

☐ Cheque/Eurocheque made payable to **Europress Direct**

☐ Access/Mastercard/Eurocard/Barclaycard/Visa/Connect

Expiry Date: /

No. ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Name .... Signed ....

Address ....

.... Post Code ....

Daytime telephone number in case of queries ....

MU10

Mailing

Labels

£36.00 £7.45/1000

Educational Software

(Hangman - 25 languages) £12.50

Software for MS-DOS & BBC/Acorn Machines

Micro-Aid Kildonan Courtyard,
Barrhill, GIRVAN, Ayrshire, KA26 OPS
Tel: 0465-82288 FAX available VISA/ACCESS

DIAMOND-PUBLIC-DOMAIN

For The Archimedes
Over 400 Disc Available
Graphics-Utilities-Draw-Files-Sprites-Applications-SoundTracker
Clip-Art-Sonix Super Sounds-Games & Demos

For First Class

Full Range of The Serial port Software/Hardware Available

65watt Power Supplies
Cased: 12volt at 1.5amp
Surge upto 2.5amps £29.50
5volts at 3.75amps +£3.Del.

And Same Day

Discs Are Priced AT £1.50 Each. This Includes Recorded Delivery & Package
For Catalogue/Demo-Disc With Over 1400k Of Useful 'GOODIES' Send £1.50 To-
Mike Witkiss, 86 Meadowbank, Moor Lane, Holway
Holywell, CLWYD. CH8 7EF

DATASTREAM

The Data Stream is now pleased to offer our customers a price cut. Now we can offer our PD discs from just 99p. You now can choose from over 350 discs full of utilities, demos, soundtrackers, graphics, clipart, samples etc etc. Also we have the latest outline fonts.

32 Hollinwell Avenue, Wollaton
Nottingham NG8 1JZ

Why not order our new Catalogue / Demo disc 3 ? This disc contains our new catalogue, Data Demo 3 and and some compressed PD to make this disc great value. Our catalogue not only features the names of each program but also has a comprehensive description of each so that you know what you are buying! Send a 50p coin or a cheque made payable to The Data Stream.

Also, the new magazine disc, *Absolutely* has been officially launched. Costing just £3.00 for one issue and £7.50 for three , the magazine comprises of many articles on subjects such as ARM coding and demo writing and 1 compressed disc of new Public Domain software. Please send any articles and orders to *Absolutely, 3 Burton Drive, Chilwell, Nottingham. NG9 5NS.*

Archimedes Public Domain

Skyfall

VISA Access

Just £1 for our New Autumn Double Demo

Skyfalls Autumn Catalogue is just out, it now contains more details than ever before, of our 420 discs. We offer a support hotline, which can accept credit card orders, plus rapid depatch on all orders.

Please send £1 to;
PO Box 2220, Birmingham, B43 5RZ.

OPENING OFFERS

Master 128	£350	Microvitec monitors:		
Archimedes A3000	£540	14" standard res. colour		£194
A3000 Learning Curve	£630	14" medium res. colour		£234
Archmedes colour monitor	£198	14" high res. colour		£396

Cumana Drives:

40T DS	}without	£71	40T DS	}with	£88
80T DS	}power	£81	80T DS	}power	£98
2x40TDS	}supply	£133	2x40T DS	}supply	£160
2x80T DS	}	£164	2x80T DS	}	£184

Post & Packaging £10 per item. Next day £15
Education orders accepted or cheque with order please.

CC COMPUTER SERVICES

15 Oakdale Road, North Anston, Sheffield S31 7EY 0909 - 564947

ARCAYNIA

The Archimedes Public Domain

Arcaynia Demo Package 7 is Ready NOW !!! A Packed PD Disc for a Quid

But not only do you get a disc crammed with packed PD, but also a 12 page professional printed catalogue booklet, listing over 400 discs of quality PD, including serious applications, great games, 70Mb of digital stereo music, Artistic draw clipart, 7 discs of outline fonts, Stunning Arm Demos.

All for just £1.

Arcaynia : PO Box 1927 : Sutton Coldfield : B74 3QZ

Fun & Games

3 Games £19.95 For the Archimedes and A3000

An exciting new collection of National Curriculum Maths and English games for 5-9 year olds

Send now for a FREE COLOUR CATALOGUE :

HS SOFTWARE, FREEPOST,
SWANSEA SA2 9ZZ.
TEL : (0792) 204519

HS

The convenient SINGLE SOURCE for EDUCATIONAL SOFTWARE

- * All popular educational programs at publishers prices or below including Mirrorsoft, 4Mation, Sherston, E.S.M., Bourne, Chalksoft, Kosmos, Database Fun School, etc.
- * Wide range of formats: Not only BBC/A3000/ Electron but also Spectrum +2/+3, Amstrad, Nimbus, Commodore 64/Amiga, Atari ST, IBM-PC and others!
- * Vast stocks: 30,000 programs available for immediate delivery.
- * Unconditional guarantee: problems rectified by expert staff – telephone helpline also available.

THE EDUCATIONAL SOFTWARE DIRECTORY
describes and prices hundreds of programs
Write or phone for a free copy

RICKITT EDUCATIONAL MEDIA
FREEPOST • Ilton • Ilminster • Somerset TA19 9HS •
Telephone 0460 57152 • Fax 0460 53176

Please state the age of your children and make of your computer

!!!! EVERYTHING'S A BARGAIN !!!!

T.M.J. Computer Software

39 Farmstead Road, Corby, Northants. NN18 0LE. Tel: 0536 69011

All prices include VAT, Post and Packaging

Fly With TMJ
Interdictor 2, Chocks Away
Chocks Away Extra Missions
MIG 29 Fulcrum
£95.00

STAR BUYS

Chocks Away Compendium	£36.00
The Real McCoy 1 & 2	£49.00
Holed Extra 1 & 2	£29.00
13 3.5in. DSDD Disc's	£5.50

Games Software

Boogie Buggy	£19.99
Break 147 & SuperPool	£19.99
Blaston	£16.99
Chocks Away	£19.99
Chocks Away Extra	£16.99
Chess 3D	£16.99
E-Type	£16.99
Gumshoes	£19.99
Hostages	£16.99
Iron Lord	£14.99
Mig 29 Fulcrum	£34.99
Powerband	£19.99
Saloon Cars	£19.99
The Real McCoy	£25.99
The Real McCoy 2	£25.99
Wonderland	£29.99
Zelonites	£20.50

Music

Rhapsody 2	£53.50

Art

Atelier	£87.99
ProArtisan	£89.99
Euclid RISC-OS	£58.99
Midnight Tracer	£54.99
Clip Art 1	£29.99

DTP

Impression Junior	£88.00
Impression 2	£160.00

Comms

ArcTerm 7	£69.00
HearSay	£59.00

Please ring for prices on the full range of Acorn Machines

Telephone Orders Welcome

Open Monday – Friday 9.00-12.00 & 1.30-5.30
Saturday – 9.30-12.00

★ **See you at the CLUB A3000 Show on November 17 1991 at Mill Hill School, The Ridge Way, Mill Hill** ★

SENLAC Computing Ltd. *(Est 1988)*

	£	(ex VAT)
Impression 2	150.00	(127.66)
Impression Junior	81.00	(68.93)
FontFX	9.50	(8.08)
Scan-Light Plus 256	225.00	(191.49)
Scan-Light Plus *Junior*	192.00	(163.40)
Scan-Light Plus A4	407.00	(346.38)
with Sheet Feeder	506.00	(430.64)
Laser-Direct	1050.00	(893.62)
Laser-Direct Hi-Res	1575.00	(1340.43)
ShowPage	138.00	(117.45)
Equasor	48.00	(40.85)
!Tracer	57.00	(48.51)

Cash On Delivery available on single orders up to £350.00 value. Only £2.50 extra!

	£	(ex VAT)
Midnight Graphics Clip Art	34.00	(29.94)
Micro Studio Graphics *from*	17.50	(14.89)
Poster	87.00	(74.04)
Pipedream 3	138.00	(117.45)
Schema	113.00	(96.17)
Rhapsody 2	55.00	(38.30)
Genesis 2	138.00	(117.45)
Magpie	56.00	(47.66)
Revelation	81.00	(68.94)
Multistore	255.00	(217.02)
Flexifile	133.00	(113.19)
MultiFS	34.00	(28.94)

*** **REMEMBER!** Prices include VAT at 17½%, postage and packing ***

Please make cheques/postal orders payable to **SENLAC Computing Ltd (MU).**

P.O. Box 304, BRIGHTON, BN2 2TT

We offer similar discounts across our whole range. Please send S.A.E for current price list.

VAT Reg. No. 508 7594 16
Company Registration No. 2277309

DataKing - "...the database package that schools - and most people - actually want" - Micro User

Available now: **DataKing Plus**

- * Fully RISC-compliant
- * Wide range of graphs and charts
- * All charts export to !Draw
- * Designed (by teachers) to meet National Curriculum data handling requirements
- * Simple to operate - learn and use in one lesson
- * Rapid file creation and data entry
- * Comprehensive search and sort; define fields as function of other fields, "fast data" (tokenised fields), label printing, statistics etc
- * Perfect for non-IT specialists
- * Ideal for classroom and home use
- * £59 inc. - inclusive of site licence
- * LEA licences - £10 per school

Shenley Software, 5 Coombefield Close, New Malden, Surrey KT3 5QF 081-949-3235

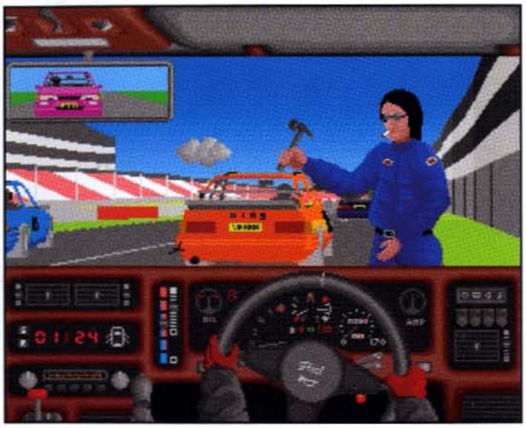
THE MICRO USER

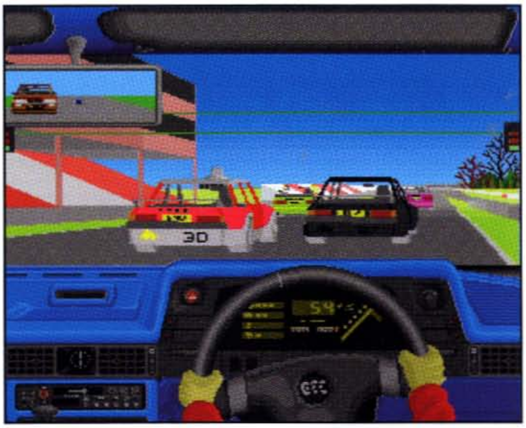
Advertisers Index

4Mation 113
4th Dimension 20, 21, 131, IBC
Ace 118
Acorn User 125
Advanced Comp Services 134
AI Systems 110
Aleph One 34
Arcanyia 137
Atomwide 8
Automatic Services 134
Beebug 10, 12, 14
Cardigan Electronics 135
CC Computers 137
Clares 107
College 16, 17
Computer Concepts 60, 61, 62, 63
Computer Tutorial 135
Contex 49
CSS Computer Centre 134
Dabhand 6, 7, 45
Daco 135
Data Stream 137
Datastore 59
Design Concept 55
Diamond PD 137
Electronic Font 73
EMR 55
ESM 64
Europress Software 25
Fact Systems 49
Ground Control 59
Hex 54
HS Systems 137
Ian Copestake Software 78, 79
Ifel 59
Integrex 76
JR Lectronics 135
Kendal Computer Centrre 110
Krisalis 51
Le Computer 134
Mansfield 115
Mauden 134
Micro Aid 137
Micro Studios 55
Micromania 135
Minerva 22
Morley IFC, 3, 28
Norwich 71
Oak Solutions 38, 44
Orion 42, 46, 47
Pres 31
Rickett 137
RW Electronics 71
Selective Services 134
Selective Software 64
Senlac 138
Serial Port 56
Simtec 59
Skyfall PD 137
Software Bargains 50
Spacetech 71
Superior OBC, 48
TMJ 138
Voltmace 64
Watford 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101
We Serve 49
Yarm 135

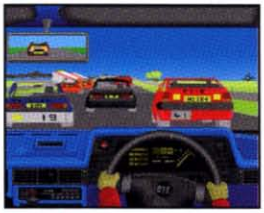
BBC A3000 / ARCHIMEDES /BBC A3000 / ARCHIMEDES /BBC A3000 / ARCHIMEDES

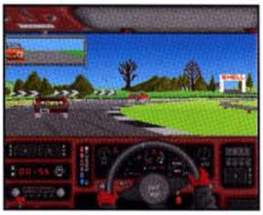
Saloon Cars

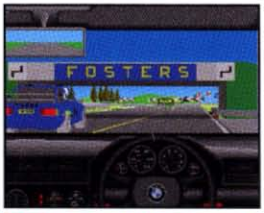




The Ultimate Driving "Game-ulation"!







BRANDS HATCH

Combining the best features of a fast and furious racing game with the realism of an accurate driving simulator. Work your way up through the leagues, buy extra features and faster cars, to become the Saloon Car Racing Driver of the Year.

Game Plot

You are an amateur racing driver just starting in the field. You race at weekends during the summer, and have a full time job at the office all week* which helps you to pay some of the gargantuan bills you incur at weekends! You have recently blown your life savings on an Astra GTE and entered a season of races ...

With your Astra you compete in class C against the other Astras and, if you prove yourself worthy by working your way up through the league, you may eventually manage to get sponsorship to race in class B. At this point you will need to buy a BMW M3, built to your exact specifications and the manufacturer's custom price. After a few more seasons you may even reach the exalted heights of a Cosworth Sierra ...

*It is beyond the scope of this program to provide a realistic simulation of a full time office job!

Dynamics

The mathematical simulation of the dynamics of a car in motion was set up by a professional physicist. A Classical Newtonian model is used for the transmission and to model the motion of the wheels on the road in both regimes of sliding. The result of all this is a program realistic enough to allow front, rear and four wheel slides, Understeer and Oversteer and of course handbrake turns.

Graphics

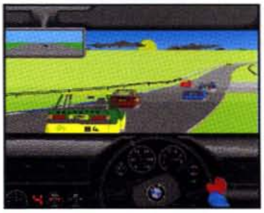
The game features 256 colour, mode 13 graphics, designed by a professional artist. The view is a first person, cockpit view from which you can see the road ahead, the rear view mirror and instruments. The main view features totally customised handwritten ARM code graphics routines which were necessary to maintain the superb frame rate and create a view previously undreamed of. The courses (Silverstone & Brands Hatch) feature bridges, stands, gravel traps, barriers, the pit lane, and even the man with the chequered flag. Of course there are many other features, but we think its better to save most of them to be a surprise!

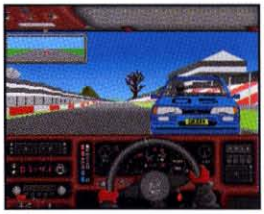
Technical Information

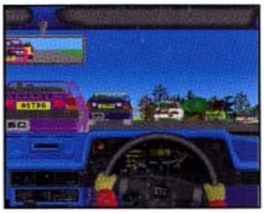
Frame Rate	Up to 25 FPS
Object Code	250k of Handwritten Arm Code
Graphics	256 colour, mode 13 graphics Handwritten custom graphics routines
Sound	Digitally sampled sound effects (Naturally!)
Computer	Any Archimedes with 1Mbyte or more
Inputs	Mouse, Keyboard or Joystick
Serial Link	This option will be supplied on a separate disc This will hopefully be available in October '91

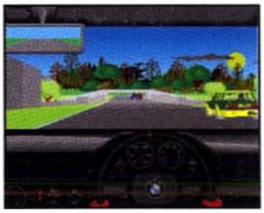
BBC A3000 & ARCHIMEDES PRICE £24.95

Saloon Cars is compatible with the BBC A3000 and 310 & 400 Series









DEALERS

Most of our games are available from most good dealers. If they don't stock them, then please give them a copy of this advert & tell them they can easily buy them directly from us.

SUPERFAST 1st Class FREE Delivery

LETTER

Simply send us a quick letter telling us the game(s) you require, your name and address, and payment via cheque, postal order or ACCESS or VISA card details

The Fourth Dimension, 1 Percy Street, Sheffield, S3 8AU, England.

All orders are despatched immediately by 1st Class post. Carriage is paid by us in the U.K.
(Overseas orders add £3 per product).
FULL DETAILS OF ALL OUR GAMES ARE AVAILABLE ON REQUEST & ARE SENT WITH ALL ORDERS.

TELEPHONE

TELEPHONE ORDERS WELCOME

(0742) 700661 / 769950

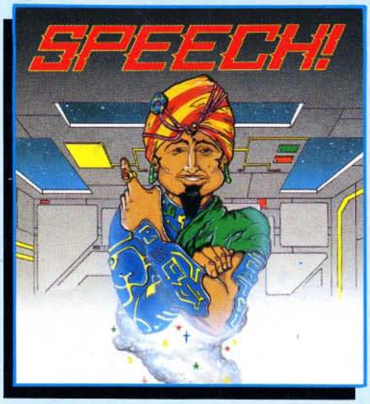
ACCESS & VISA Accepted

24 hour Service 7 Days a Week

THE FOURTH DIMENSION

1 Percy Street
Sheffield
S3 8AU
England
Tel. (0742) 700661
or 769950

SUPERIOR SOFTWARE



A3000/Archimedes

SPEECH!
SPELL SPELL
SPELL SPELL
SPELL SPELL
A3000/Archimedes

SPEECH!
Give Your Computer a Voice

SPEECH! works entirely in software, no extra hardware whatsoever is required, and has an unlimited vocabulary. The program has a built-in parser which translates English words into phonemes, so it can directly speak words you input or text files. The phonemes can be used directly if you wish, so stress and intonation can be added as required and even foreign languages can be spoken. SPEECH! includes a user-friendly spelling program, which can be easily changed to include your own words.

The new A3000/Archimedes version of SPEECH! is fully RISC OS compatible and allows multitasking in Desktop. You can vary the pitch, speed, volume, and voice, both directly and in your own text files and programs, and can even 'sing' words over a four octave range! The A3000/Archimedes version also includes a program so you can alter the dictionary yourself.

BBC Micro/Master & A3000/Archimedes

MASTER BREAK
Snooker-Style Trivia Quiz Game for 1 to 4 Players

Six categories of questions: SCIENCE & NATURE, POP MUSIC, GEOGRAPHY, SPORTS & PASTIMES, ARTS and HISTORY. Over 1500 questions in the BBC Micro/Electron version. Over 2000 questions in the A3000/Archimedes version, including digitised picture and digitised sound questions.

In the 1 player game, try to get the highest break - you might even manage the maximum break of 147. In the 2 to 4 player game, compete against your friends and family for the highest score and highest break.

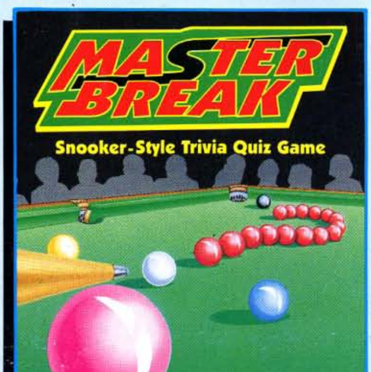
Start your frame with an easy red question, then choose your colour - have you the nerve to choose the black ball question? You've used all your PASSES and the ball is OVER THE POCKET - if you miss, it's a FOUL SHOT!

ALL THE FUN AND CHALLENGE OF A TRIVIA QUIZ AND SNOOKER MATCH ROLLED INTO ONE ENTHRALLING GAME.

BBC Micro/Master, Electron & A3000/Archimedes

Black Ball on Science & Nature
BBC Micro/Master

A3000/Archimedes



PLAY IT AGAIN SAM 15
NINJA
CYBORG WARRIORS
NETWORK
RICOCHET

Last Ninja 2

Cyborg Warriors

PLAY IT AGAIN SAM 15
A New Action-Packed Four-Game Compilation

LAST NINJA 2

The Last Ninja is back with a vengeance! Battling with fists, shuriken stars, swords and lots of other devious weapons, against the evil Shogun in downtown New York.

"Animation is excellent and there's lots of detailed scenery. The puzzles are quite fiendish" ....Micro User.

NETWORK

An action-packed 'Top Ten' game by Peter Scott, featuring teleport machines, lifts, springs, strange aliens and lots, lots more. Shoot your way through more than 100 different screens as you attempt to collect the twenty parts of the 'Flynche' machine. Nerve-tingling excitement.

CYBORG WARRIORS

A brand-new release by Superior. A multi-level, sideways scrolling shoot-em-up, with lots of weird robots and monsters to shoot, and tokens to collect which can give more powerful weapon systems. The BBC Micro/Master version has a joystick option, which allows two players to battle together.

RICOCHET

A massive arcade adventure with brilliant graphics, as you control SPRAT, the Small Partially Robotic Alien Time-traveller. Five different levels: FORTRESS, TECHLEV, DERELICT, THE UFO and ANCIENT.

"A superb problem-solving game. A must for your games collection"....BBC Acorn User.

BBC Micro/Master & Electron

SPEECH!	MASTER BREAK	PLAY IT AGAIN SAM 15
BBC Micro Cassette £9.95	BBC Micro/Electron Cassette...£9.95	BBC Micro/Electron Cassette...£12.95
BBC Micro 5¼"Disc..............£11.95	BBC Micro 5¼"Disc..............£11.95	BBC Micro 5¼"Disc...£14.95
Master Compact 3½"Disc....£14.95	Master Compact 3½"Disc....£14.95	Master Compact 3½"Disc......£19.95
A3000/Archimedes 3½"Disc...£19.95	A3000/Archimedes 3½"Disc...£19.95	

BBC Micro Cassettes & BBC Micro 5¼" Discs are compatible with BBC B, B+ & Master 128 computers. Screen pictures show the BBC Micro versions of the games, unless otherwise stated.

We have in stock over 30 different titles for the BBC Micro/Master and Acorn Electron computers including such great games as: ELITE, REVS + REVS 4 TRACKS, EXILE, HOSTAGES, A QUESTION OF SPORT, REPTON INFINITY, PERPLEXITY and SIM CITY, and the compilation titles: ACORNSOFT HITS 1 & 2, SUPERIOR COLLECTIONS 1, 2 & 3 and PLAY IT AGAIN SAMS 1 to 14. All are available for immediate despatch

Our A3000/Archimedes titles include great classics such as ZARCH, CONQUEROR and REPTON 3 (now with enhanced graphics), and the new highly praised golf simulation/designer, SUPERIOR GOLF. Also the action-packed HOSTAGES game.

Please write to the address below or telephone for a full list of Superior Software games.

SUPERIOR SOFTWARE
ACORNSOFT

(Superior Software is a trading name of Superior Microcomputing Ltd.)
Dept. Q2, P.O. Box 6, Brigg, S. Humberside DN20 9NH. Tel: (0652) 58585

PLEASE MAKE CHEQUES
PAYABLE TO "SUPERIOR SOFTWARE."

Access VISA

24 HOUR TELEPHONE
ANSWERING SERVICE FOR ORDERS

OUR GUARANTEE
- All mail orders are despatched by first-class post
- Postage and packing is free
- Cassettes and discs that are faulty on receipt will be replaced immediately

(This does not affect your statutory rights)